ADVICE // SITES
TECHNOLOGY //

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40 Guaranteed ways to make your site sticky

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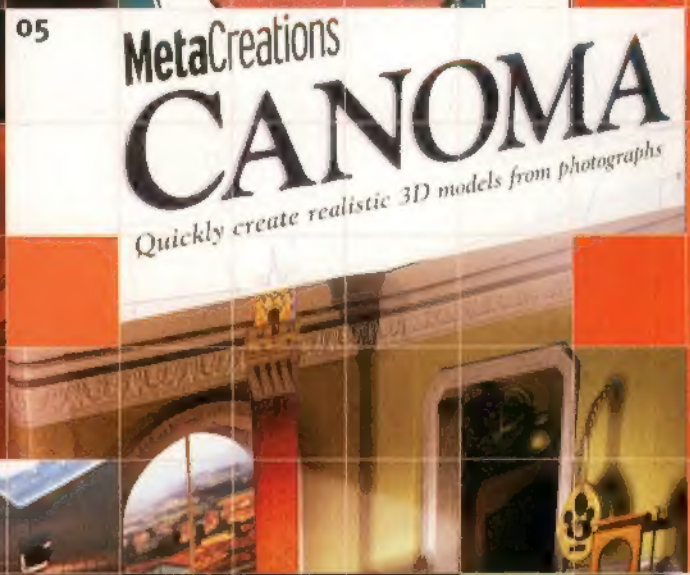

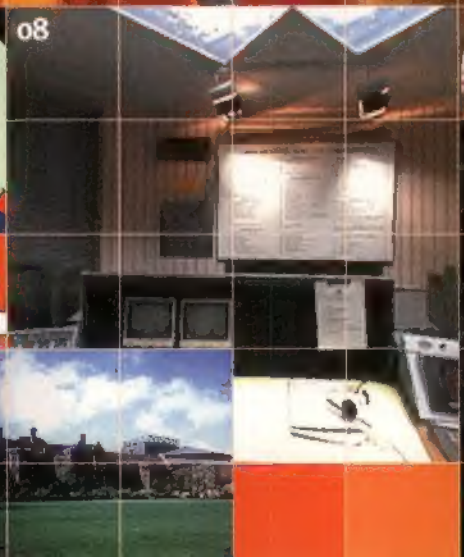

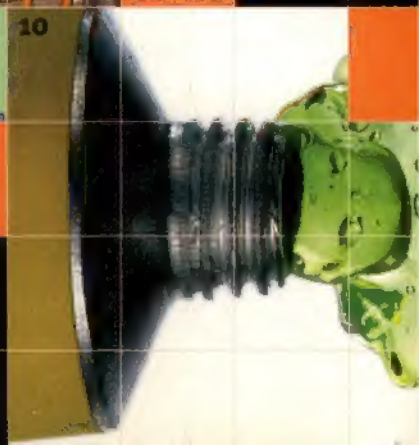

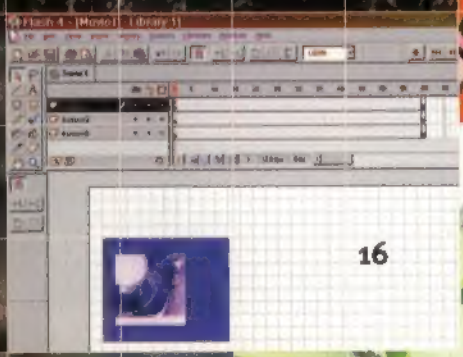

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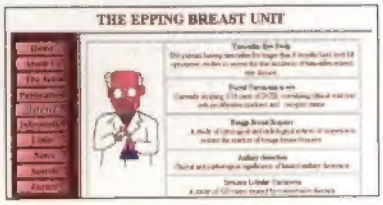

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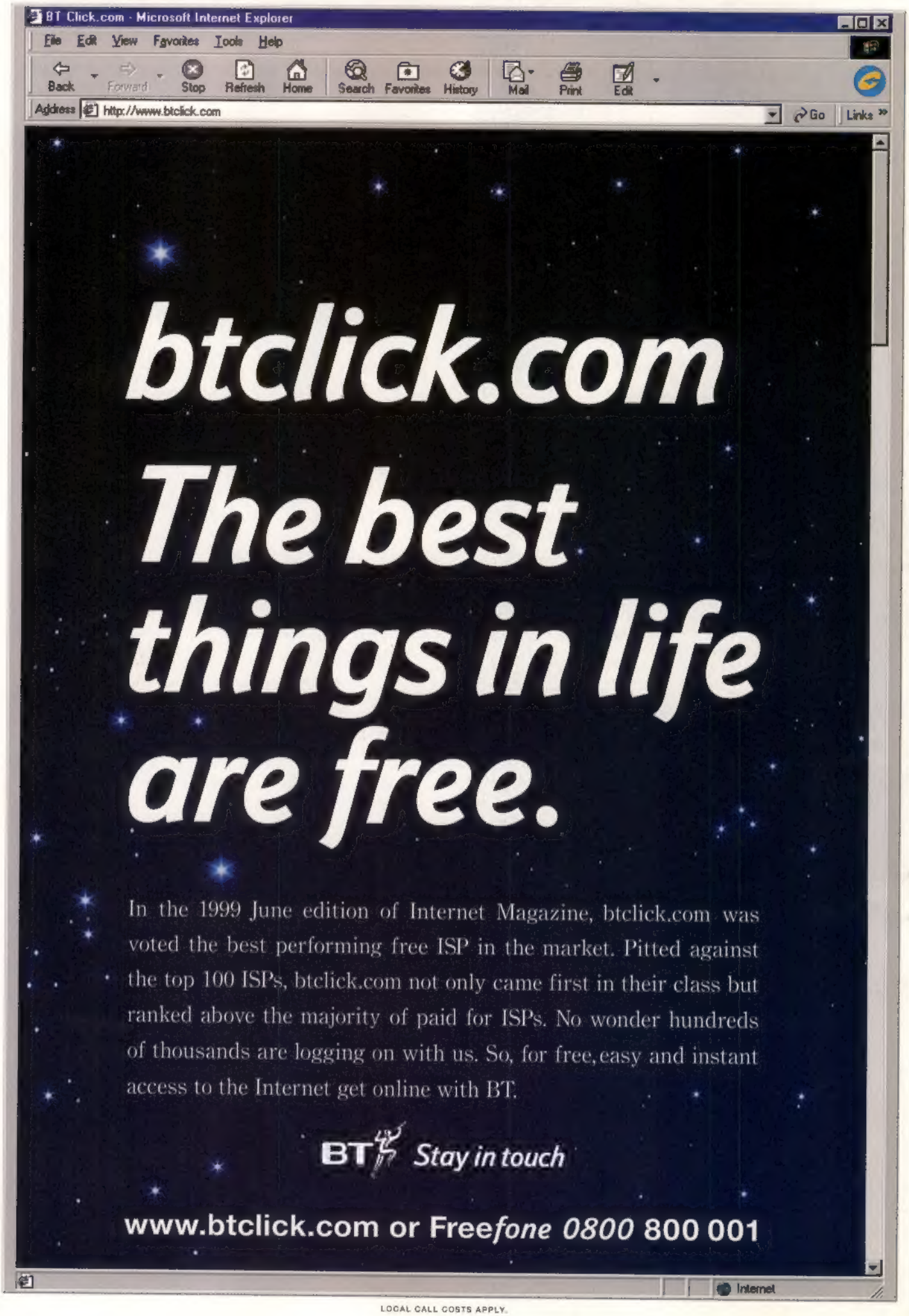

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Editor'swelcome

Theory of evolution

Hello and welcome to the September issue of *Internet Magazine*, the first choice magazine for Internet enthusiasts and experts.

Regular readers will notice a few changes to the magazine this month. We've moved some of our regular features around and given others new names. Check the contents on page 7 to make sure you don't miss anything.

We've made *Internet Magazine* more accessible to enthusiasts who want to become Internet experts, without spoiling it for those of you who are experts already.

As more people realise they have to know more about the Internet, the demand for a friendly but authoritative guide has grown.

This is it. Every month we provide the best news analysis, the stories behind the hot new sites and the latest developments in Net technology. It's for all discerning Net users who don't mind being entertained while they're being informed.

A brand new feature starts on page 72. Every month in Home Improvement, professional Web designers look at a selection of readers' personal Web sites and provide essential advice and tips to make them even better. If you would like your site featured, email **richardd@internet.emap.com.**

OK, self-promotion over. We hope you enjoy the magazine, and if you can think of any ways to make it even better, I'd love to hear them.

Martyn Moore
Editor
martynm@internet.emap.com

Let the e-trading begin

E-Comms Bill gives the go-ahead for digital signatures

After three years of committees and consultation, the Government has released a draft version of the Electronic Communications Bill. Digital signatures get legal recognition, but concern remains over key escrow, the placing of encryption keys with trusted third parties.

The Bill begins by setting out its aim to "make Britain the best place in the world to do business electronically" and to help "create confidence in the use of electronic communications between businesses and their customers".

The draft Bill proposes that digital signatures become admissible in court, something e-business has been demanding for years. When there is disagreement over a validity of a signature, a court will decide whether the signatory intended to indicate what is in the document. This is the way common law treats handwritten signatures.

It's a welcome move. In previous drafts, a court would have found itself entangled in deciding the issue of whether an accused person used an 'approved' technology in the creation of the signature. The market will be allowed to come up with its own standards. This is a radical change of stance for the Government, which seems to have finally understood that it needs to facilitate and encourage, rather than try to control, the growth of e-commerce.

But it's not all good news. At first glance, the issue of key escrow, which could force companies to register encryption keys with a third party (possibly the police), seems to have been abandoned. But tucked away in the 80-page Bill are clauses which could mean that key escrow could be introduced at a later date without the need for further Parliamentary debate on the issue.

Despite the fact that the Bill was issued by the DTI, many of the sections could have come direct from the Home Office. Check out the section that states that those who fail to reveal a key in their possession (when asked by the police) could face a two-year jail sentence.

It seems Jack Straw is willing to do just about anything to stop those cyber criminals, pornographers and paedophiles (who we know make up the vast majority of Net users) from taking over the world.

The Bill states, rather ominously, that the widespread adoption of key escrow and recovery is unlikely "in the current climate". A clear sign that the issue is likely to return to haunt us in the future.

It's always easy to pick holes in proposed legislation, and there are certainly many questions raised by the Bill that remain unanswered – like how it'll work in an international context, and issues of taxation.

But things could have been a lot worse, and the Government should be congratulated in general. After all, it could have taken the easy option and done nothing at all. UK e-business would have then moved offshore in droves. This is the nightmare scenario that must be prevented at all costs.

Interested groups have until 8 October to comment on the Bill.

www.dti.gov.uk/cii/elec/ecbill.html

:-) Get yourself unhitched

There's no end to the products you can buy at the Freeserve site these days. Why not purchase yourself a divorce for the bargain price of just £79.99? Adultery, unreasonable behaviour and desertion are among the possible reasons you can use to get unhitched. The only question the site can't help you with is who gets custody of the sofa or those Hawkwind CDs.

www.freeserve.net

Fast access to be universal?

Oftel inquiry into high-speed Net links could result in ADSL for all

Oftel is to look at proposed high-speed links to the Net for disadvantaged groups and those in rural areas.

The Universal Service Obligation (USO) ensures low cost telephony services. An Oftel consultation will consider extending it to include access to higher bandwidth technologies, such as ADSL (Asymmetric Digital Subscriber Line).

"It might be appropriate to have a USO that includes higher bandwidth services. Our consultation seeks views on when this might be appropriate," said an Oftel spokesman.

In a separate move, BT has announced that 400 telephone exchanges covering around six million homes and businesses will be upgraded to carry the ADSL service by next March.

Areas covered include London, Cardiff, Belfast, Coventry, Manchester, Newcastle, Leeds, Edinburgh and Glasgow. But it won't be cheap. Wholesale ADSL prices for ISPs range from £40 to £150 a month.

www.oftel.org.uk/www.bt.com

Timeline

30 August

The EC has been working on Europe-wide filtering for Net content. Now it's putting our money where its mouth is. The telecoms and computing directorate is to fund projects, and the call for tenders is published today.
www.echo.lu/iap

30 August-2 September

CERT, the Computer Emergency Response Team, keeps track of security holes in Net software. At its conference in Nebraska it'll be talking about 'Asset Protection in an Open Environment' – or 'how to keep stuff safe when you have a Net connection'
www.omaha.com/cert

31 August

People are realising that sites that can't be used by disabled people are a bad idea, and today at INTERACT 99 in Edinburgh, you can hear about Designing Speech-Driven User Interfaces
www.dcs.gla.ac.uk/i99

September

Go out and buy an IBook – in tangerine or blueberry – from your local Apple store. And then, with the AirPort Wireless Networking, you'll be able to sit on the sofa with your laptop and get online without cables.
www.apple.com

September

Scoot, the online information service, should be smiling, with a big fat cheque for £15.5 million from its US investors.
www.scoot.com

Get ready to set up shop

Software to assess e-commerce potential launched

One of the toughest questions faced by small and medium businesses today is "Could we improve performance and profits by selling on the Internet?"

A software program has been developed by Actinic, creator of the award-winning Catalog shop-in-a-box software, to evaluate a business's Web potential. The program will consider the business's needs and recommend an appropriate e-commerce strategy in a customised report.

Businesses around the country will soon have an opportunity to try the software at a series of seminars presented by Actinic and *Internet Magazine*. Specialists in e-commerce will be speaking at each seminar and a range of e-commerce solutions and services will be demonstrated.

The Actinic/*Internet Magazine* seminars for retailers and resellers kick off in London on 13 October and call at Glasgow, Manchester, Birmingham and Bristol. Tickets cost £20 and you can register by calling (01932) 860 524 or on the Actinic site, where you can read details of the agenda, dates and venues.
www.actinic.co.uk/seminars

NTL steps closer to cable monopoly

NTL buys Cable & Wireless consumer division

When cable came to the UK five years ago, there were more than 20 operators. Now there are just two. NTL has bought the consumer cable network of its larger rival Cable & Wireless Communications (CWC) for £8.2 billion.

The announcement is of huge importance to the provision of broadband Net access in the UK. Not only will NTL become the country's largest cable firm with 2.8 million customers, the link-up of NTL and CWC could be the first step towards a much bigger deal – the merger of NTL with Telewest. If NTL could pull off this double deal, it would have the fibre-optic network to take on the likes of BSkyB and BT.

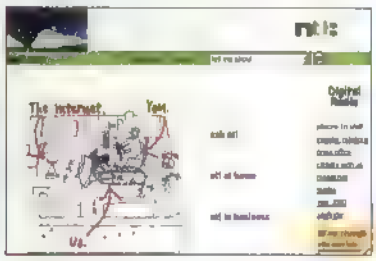
Under the agreement with CWC, NTL will buy the consumer cable telephone, Internet and television operations. NTL will need to decide what to do with the 140,000 users who use the Cable & Wireless Lite free ISP.

The corporate business of CWC will be merged back with parent company Cable & Wireless. This would value the whole of CWC – including the business services and consumer side of the operation – at £14.7 billion including debt.

Significantly, both NTL and Telewest have a shareholder in common – Microsoft boss Bill Gates. The world's wealthiest man bought strategic stakes in both companies in May. His aim is to get a slimmed-down version of Windows CE used in Internet TV services.

Cable & Wireless has made no secret of the fact that it's been trying to get out of the consumer market to focus on the high growth markets of the Internet and the provision of data services to business customers.

NTL was created by a group of New York-based entrepreneurs in 1993 and entered the British cable market five years ago as CableTel. France Telecom is one of NTL's largest backers.
www.cwcom.co.uk
www.ntl.com



● NTL is set to become the dominant force in the UK cable industry

● The 140,000 Internet Lite users face an uncertain future

IN BRIEF

■ FHM, the popular men's magazine published by Emap (publishers of Internet Magazine), is to launch a subscription-free ISP service. The magazine has 3.4 million readers and its Web site (www.fhm.co.uk) gets around 12.3 million page impressions a month.

■ **Following in the footsteps of The MutualNet (www.themutual.net), a new free ISP known as Totalise is inviting you to register for shares in the company. The initial price will be 20p a share and the first issue of 250 free shares per user is now available by registering at www.totalise.net.**

■ US based online investment service E*Trade has launched a UK site that gives investors stock market information and the chance to buy and sell shares online. Its site (www.etrade.co.uk) offers different levels of service ranging from a free membership to a full trading account, which requires a minimum deposit of £1,000

■ **Virgin Net has launched an online four-hour sports show. Sports Saturday will broadcast live audio coverage of a wide range of events. Viewers will also be invited to take part in online betting. Reports that Des Lynam has been brought in to front the online show are unconfirmed.**
www.virgin.net/sport/matchdaylive

■ Approximately 10 million people use the Net in the UK but less than 39 per cent are women. But according to a survey from Media Matrix (www.mediamatrix.com), half the number of adult Net users in the US are women and the women's market is growing considerably throughout the world. Sadly, the number of Web sites appealing to female users is still low.

■ **The threat of fraud isn't a problem for online retailers, and is less of a concern than for offline companies, according to a report from ActivMedia (www.activmedia.com). The survey showed that one in 10 sites report "minimal" problems and only four per cent had to regulate fraud problems.**

■ Terry Ellis, co-founder of Chrysalis Records, has launched a new Web site to give unsigned bands the chance to release music on the Net. He hopes Star Gig (www.stargig.com) will wipe out the need for artists to rely on record companies to distribute their music.

■ **Online retailers Boxman and IMVS are to merge their UK operations. Boxman (www.boxman.co.uk) was founded in Sweden and is being backed by a number of high-profile Swedish pop groups including Roxette and Ace of Base (but not Abba!). In a separate move, IMVS has launched a trendy new online music store known as Yalplay.**
www.yalplay.com

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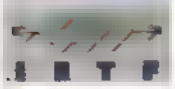
OVERHEARD "AOL is more focused on its proprietary hold on the instant messaging space than what is right for customers." MSN statement

Time line

September
The Lyra is the new handheld solid state MP3 player from RCA/Thomson and is on sale now. It'll play RealAudio files (via RealJukeBox) and its decoder chip can be reprogrammed to play new formats as they're launched
www.lyrazone.com

1 September
The Sun-Netscape Alliance, still trying hard to show they have something to offer the Internet community, release their new Netscape Application Builder 4.0 today.
www.[illegible]

5 September
In the old days, the Internet was run by the Internet Engineering Task Force. The power might have shifted towards the global corporations, but IETF's open meetings continue. If you want to go along to the 46th IETF meeting in Washington DC, in November, go to its site and register NOW.
www.ietf.org



Death of the phone box

The birth of the multimedia kiosk signals a more accessible Net

The public phone box could well be a thing of the past, as multimedia kiosks come to a street or bus shelter near you.

BT is installing 1,000 multimedia Internet and telephone terminals at airports, shopping centres, railway stations and motorway services throughout the country. Data transfer will be via ISDN 2, with two channels operating at 64k each.

Ken Livingstone, MP and candidate for the post of mayor of London, said at the launch that the terminals would help break down the "élitism, and social barriers that the information age has started to build up".

Unfortunately, with Net access at the terminals costing 10p a minute, it doesn't come cheap. BT won't be installing them at what it describes as "high risk areas" for fear that the terminals' "12-inch full-colour touch sensitive screen" will be vandalised. So the Net won't yet be coming to inner city areas, where it could make a real difference.

Meanwhile, Cityscape has installed five of its i-plus multimedia kiosks at bus shelters in and around central London. The i-plus kiosks have a steel casing containing Pentium PCs and 15-inch interactive touch-screens overlaid with toughened glass. The information is delivered using Web-based technology, although it only gives access to local information. Londoners wait an average of six minutes for a bus, so there's time for a quick look.

Finally, Smart Media has launched an intranet kiosk aimed at "forward thinking retail outlets" It'll let customers browse product lines, order cinema tickets and buy gift vouchers online. The units include a CPU, a high quality touch-screen, a bank note validator with a secure cash box, and a card reader capable of handling both magnetic cards and smart cards. The first Smart Media kiosk has already been installed in a Vodafone store in Birmingham.
www.bt.com
www.cityspace.com
www.smartmedia.com

● Model Caprice at the launch of the new BT kiosk

BOOKMARKS OF THE RICH AND FAMOUS

Backstage at the glitzy Yell UK Web Awards we collared...

Jonathan Ross

Charming, garrulous and extremely funny, Jonathan Ross first appeared on the nation's small screens in 1987. As host of the controversial Channel 4 chat show, The Last Resort, he became famous for his love of tailored suits and distinctive speech impediment. In recent years he's moved to the BBC, presenting Film 99 and the celebrity quiz show, It's Only TV But I Like It.

Do you use the Net at home?
I've been online for about eight years and I remember the day Demon launched. I've always used CompuServe and my email address is still a series of numbers

What do you remember about the Net in its early days?
When I first started, sites seemed to consist of pictures and took ages to download. Now it's much quicker, and we can access music and movies, which makes it a much more exciting experience

SO WHAT ARE YOU FAVOURITE WEB SITES?

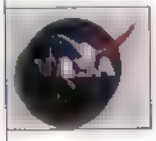
Film 99
www.bbc.co.uk/movies/film99
I go to this site to see what people are saying about me and the show. I try to post messages in the forums from home, but they never use my comments.

Goblin Home
http://goblinhome.simplenet.com

I'm a great fan of Italian horror movies. You can even download the theme of Suspiria (an obscure '70s cult movie) here

Mr. Showbiz
www.mrshowbiz.com

I often browse sites of other film critics in the US This isn't because I'm not confident in my opinions, it's just that you can miss things that others have picked up on



NASA
www.nasa.gov
My wife wrote two best selling books on the X Files, and when she was researching them she used to go to all these sites about space, forensics and aliens. The NASA site was one of her bookmarks

Want to know more about Jonathan Ross?
Visit www.bbc.co.uk/movies/film99

:-) Bunch of Arse

The world's richest football club, Manchester United, has launched an ISP The service is aimed at all those fans in Surrey who've never been north of Watford, let alone made it to Old Trafford. Arsenal FC has a similar service ensuring that fans don't have to go "up the Arse" to get their weekly football fix.
www.manutd.com/www.arsenal.co.uk

Disney and Internet Magazine join to promote safe surfing

Disney Online has declared the week commencing 20 September 'Safe Surfing Week'.

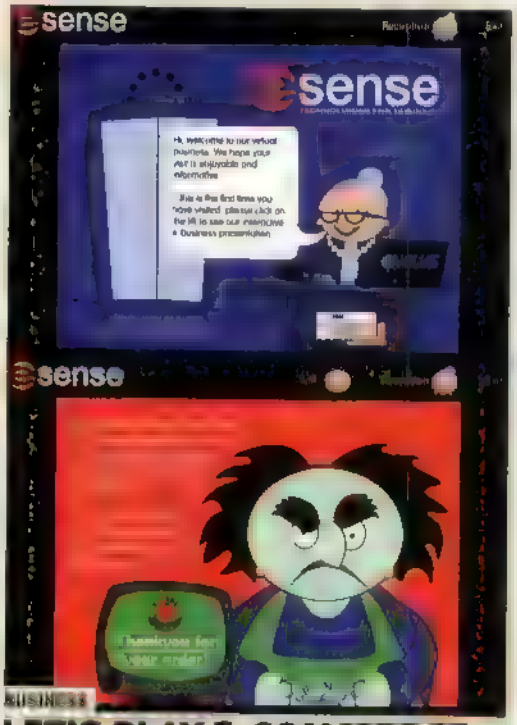
The streetwise cartoon character Doug is Disney's front man for the campaign, aimed at raising awareness of the negative aspects of the Internet. A series of initiatives on the Disney Web site will help parents protect children and ensure their experience of the Net is positive and safe.

***Internet Magazine* has helped to produce a Parents' Guide to Safe Surfing that will appear on the Disney site.**
www.disney.co.uk

"To get on the Internet, you'll need what nerds refer to as a PC." John Stapleton, presenter of GMTV, offers some early morning advice to viewers

EssentialViewing

The Web is huge and phone calls are expensive. So save time and money and only visit this month's essential sites



BUSINESS

LET'S PLAY E-COMMERCE

Esense is the perfect site for anyone who's a bit confused about how or why the Internet can do great things for a company. The site guides you through different aspects of e-commerce. As you visit different floors, you can interact with various cartoon characters with strong Brummie accents. The site might be a bit Flash-heavy, but downloading the animation is well worth the wait, and the story of the Happy Apple Company is a definite must-see.
www.esense.co.uk

SPORT

Who needs newspaper gossip when you can talk to sports stars direct online? At Sport2 you can chat to the likes of cricketer Andy Caddick or footballer Dennis Wise – for just £1.33 a month.
www.sport2.net

If you're more interested in high-speed action than having a chat with sporting celebrities, Imation's new Jordan Formula 1 site offers competitions and games as well as team info.
www.imationgrandprix.com

Next on the grids Stewart-Ford's new site, where, as well as plenty of Flash and news, you'll find a full 'tech spec' of the cars, from their tyres, engine and breaks to the transmission, electronics and suspension.
www.stewart-ford.com

But if Formula 1's too racy for you, how about fishing? This new site aims to get you hooked. If you're looking for a great place to angle, the site will point you in the right direction, with a choice of nearby hotels and B&Bs. You can even buy tackle and bait online
www.fishing.co.uk

TV STATIONS

Sky Digital's Living channel has an odd mix of subject matter, but it claims to be the number one site for women. The main attraction is Jerry (go Jerry!) Springer, but you'll also find a mum cam, online chat and some steamy stuff in the Erotica and Sextasy sections.
www.livingtv.co.uk

Trouble, Britain's baddest cable/satellite channel for UK youth, is also after more viewers. You can scrawl on to let walls or create your perfect partner by selecting the size of various body parts.
www.trouble.co.uk

FOOD

The '80s phenomenon of Covent Garden soup (the stuff in milk cartons) has made it onto the Net. You can find out about the 18 varieties, check ingredients or concoct your own soup.
www.coventgardensoup.co.uk

GAMES

Now that autumn's here, why not dust off your console or joystick for some serious computer gaming? Games Online Direct lets you choose how many games you want to buy from the site in the next year and awards you up to 40 per cent discount.
www.gamesdirect.co.uk

Games and Videos isn't cheap, but it deals in every type of game for the N64, PC, Playstation, Sega Saturn, Super NES, Gameboy and even the lovable old Megadrive
www.gamesandvideos.com

But if you don't feel like forking out £25 for a game, there are plenty of freebies on JCT's site. Play online for free, or pay a mere $9.99 (around £6.50) to add one of the games to your own site.
www.jct-concepts.co.uk/games

THE ARTS

IT'S NOT OVER UNTIL THE FAT LADY SINGS

The name Glyndebourne conjures images of picnic hampers, outdoor opera and aficionados in evening dress seated on the grass. The site's stylish design manages to convey some of the opulence of this prestigious opera venue. You can read a history of Glyndebourne, look at the technical aspects of the staging and check the availability of tickets. But you can't do anything as crass as book online.
www.glyndebourne.com

TELEVISION

A SITE THAT'LL FIT THE BILL

Believe it or not, *The Bill* – ITV's popular police drama – is 15 years old. Incredibly, Metropolitan Police surveys show the public get most of their information about the police from the programme. *The Bill*'s site is well worth a visit – you can start by taking a virtual tour of Sun Hill nick courtesy of IPIX (www.ipix-eu.com). Once you've done that, you can visit the cells, check out forthcoming episodes, or just tool up with the videos and other merchandise available on the site.

www.thebill.com

Utterly Butterly has opted for a *Star Wars*-style opening page and a Biggles-like cartoon character called Johnnie Butterly to sell its product. A mixed message, but visit the site for its game.

www.utterly-butterly.co.uk

WINE

Now you're sorted for food, how about some top vintage vino. Chateau Online is a cheeky little number that's hard to beat for online buying, advice and wine news. A site for a real connoisseur.

www.chateauonline.co.uk

Wine merchant Amivin deals in wholesale wines and gift orders. It's 'never knowingly undersold', lists over 3,700 wines, and you can join its wine club for extra discounts.

www.amivin.com

MOBILE PHONES

With the large-scale launch of Net access through mobile phones, you should make sure your handset is up to the job. First, you can visit Buy.co.uk to see if you're on the right tariff for your usage pattern by using its mobile phone calculator.

www.buy.co.uk

For the full range of mobile phones available, try Carphone Warehouse. It might not sell carphones and it isn't a warehouse, but bookmark it anyway

www.carphonewarehouse.com

At One2One, you can download a coverage map or 'talk' to Yasmin, the telco's interactive customer service advisor. Or just buy a phone. It's Up 2 You.

www.one2one.co.uk

AND FINALLY...

If you've been staring at your screen too long, you might need to visit Ciba Vision. It's truly a site for sore eyes. There's advice and medical help for any eye problem you might have, as well as plenty of products and even free samples.

www.cibavision.co.uk

TECHUPDATE

ALL THE LATEST INTERNET TECHNOLOGY NEWS

■ **3Com has announced it'll supply cable modems for NTL's new high speed UK internet service, based on the US Data Over Cable Service Interface Specification (DOCSIS). The choice of DOCSIS is an important decision since many alternative cable protocols are available, and it's impossible to develop a full network until a specific one is chosen. NTL is testing cable internet in the Guildford area and expects to roll out the service to other regions in the autumn. With the recent acquisition of the cable arm of Cable & Wireless, NTL can reach around half the UK population through its wide variety of brands. Speeds will probably start at 500kbps, though 5 Mbps is currently possible with DOCSIS.**

www.NTL.com

● Oftel aims to open up competition

■ Full-blown ADSL is technically complicated and needs expert installation. A range of telcos might offer a lightweight version of ADSL, offering around 500 kbps rather than 2 Mbps next year. The trigger for this interest was the announcement that Oftel wants to open up the consumer end of the telephone system (phone wires and exchanges) to more competition

www.oftel.gov.uk

■ **BT has finally committed itself to ADSL (Asymmetrical Digital Subscriber Line) with a £5 billion investment programme. It's been testing the high-speed technology on more than 2,000 lines during the past 12 months on a trial basis. The multinational says it'll bring ADSL capability to 400 exchanges by Spring 2000. This will give around six million businesses and households access to the technology.**

www.bt.com

● **Tele2 is harnessing technology originally created for top secret military applications**

■ Tele2 continues to roll out its wireless Internet service using Code Division Multiple Access (CDMA), a technology originally created for military applications. The company is a combined telco and ISP. Its latest service, called Tele2 Schools, costs £145 to install, plus a flat rate monthly fee of £65 for 128 kbps access. It's only available in the Thames Valley region at present, but coverage will be expanded by the end of the year. By 2003, 60 per cent of the UK population will be within range of the company's radio transmitters.

www.tele2.net.uk

■ **If you're impressed by any of this and mistakenly think the UK is doing well, think again. New Yorkers will soon be able to get 7 Mbit/sec ADSL. That's the equivalent of around 1,500 regular modems.**

Have you clicked yet?

single internet call you make

ClaraNET

www.clara.net

0845 355 1000

For real Internet value, ClaraNET is right on the button.

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- 24 hr support line at local rates
- 50MB webspace
- Free trial offer**

Time line

9 September

It's 9/9/99 and a great date for software crashes. It's also the launch date for one of the strangest internet projects for a long time – the Planetarium game. Check it out. www.beholder.co.uk

10 September

The new version of Paint Shop Pro is due to be released around now. Editable text, new Image deformations, Digimarc watermarks for pictures and lots more are promised. www.paintshoppro.com

16 September

Net-based teaching and learning is quickly becoming big business. IN-TELE is one of the groups pushing it forward, and their conference starts today in Jena, Germany. http://jena.in-tele.org

AOL's free service to target lads market

Major developments in the pipeline for world's largest ISP

AOL's subscription-free ISP service is to be called Netscape Online and will go live towards the end of August.

Designed to complement the existing AOL and CompuServe brands, Netscape Online will be targeted at a young, male and predominantly single audience.

The move reflects a need for free ISPs to differentiate themselves, in what's turning into an increasingly bloody battle for subscribers. To us, the Netscape Online brand doesn't really suggest an ISP targeted at sex-starved males interested in 'beer and birds'. But then maybe AOL knows something we don't.

As we went to press, no details of email, Web space or newsgroup services were available.

In addition, AOL is likely to launch a free-call ISP service. *Internet Magazine* has learned that, in May, 60,000 disks were sent out to a random sample of AOL members with a monthly subscription rate of £15.99. Further distribution of disks were made in June (with a monthly subscription rate of £19.99) and July (with monthly subscription rate of £29.99). Despite the price differences, the services are exactly the same.

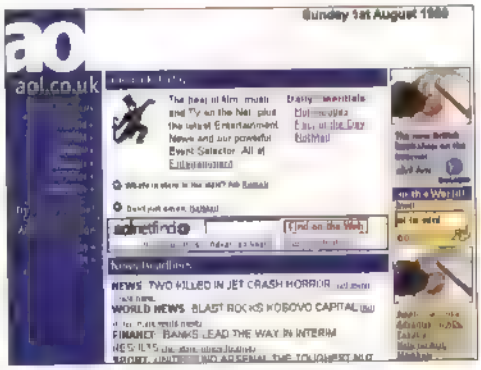
AOL has been keeping quiet about the tests and has refused to tell us the precise number of users involved.

"A number of price points are being tested," said Maggie Gallant of AOL. "But there's no way I'm going to tell you what they are."

In a separate move, AOL has announced that it's testing a service using BT's ADSL technology. "We'll pursue relationships with broadband providers of any available technology so that we can best serve our members' needs, allowing people to connect easily and conveniently – wherever they are," said Andreas Schmidt, CEO, AOL Europe.

In the US, AOL has made strategic alliances with telephone companies Bell Atlantic, SBC, GTE and Ameritech to provide broadband access.

www.aol.co.uk
www.netscapeonline.co.uk



● AOL is testing a free-call ISP service

Win tickets to Silverstone!

Web hosting and management facilities company, Server World (www.serverworld.co.uk), is offering *Internet Magazine* readers two pairs of tickets to the Silverstone Autumn Gold Cup (9/10 October) motor sport festival. The prize includes passes to the paddock and pit area where the winners will see the Team Motorsport MasterCard Honda Integra (www.pitlane-vip.co.uk), sponsored by Server World, up close and meet its driver.

To win, answer these simple questions:

- **What is the basic monthly cost of a Server World NT-based dedicated server?**
- **Name one of the four Team Motorsport MasterCard credit card designs?**

Email your answers to: racecomp@internet.emap.com

Read the rules The closing date for entry is 27.09.99. Winners will be notified within 21 days of the closing date. No cash alternative prize is available. This competition is not open to employees of *Internet Magazine*, EMAP, Server World, their agents or families. The judges' decision is final and no correspondence will be entered into. The two correct entries to be drawn at random from other correct entries will win tickets to the event. Only one entry per person. You must be over 18 years of age to enter this competition. Entrants' details will be supplied to Server World unless entries bear the words 'Do not supply details to third parties'

:-) Zoo Poo

A safari park is selling exotic animal dung to gardeners on the Net. The unique blend offered by West Midlands Safari Park includes elephant and rhino manure. Ten litres of the stuff can be bought online for £3.99 and, when we visited, they had a rather smelly 98 buckets in stock.

www.wmsp.co.uk

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"We can't be arrogant again. We have to keep the pedal to the metal." Phil Schiller of Apple about avoiding those disastrous mistakes of the past

Hot Downloads

After trawling sites all over the world, **Greg Sloman** brings you the products worth downloading. Plus the top 10 sites to visit for free script resources

HOTLIST

Top 10 Free CGI resources

Matt's Script Archive http://worldwidemart.com/scripts
Featuring practical scripts like Guestbook and Formmail, Matt makes it simple with lots of demos, FAQs and detailed instructions to help both novices and professionals.

Freecode www.freecode.com/cgiprog.html
Links to hundreds of scripts – neatly categorised and rated.

Freescripts www.freescripts.com
Freescripts contains some useful scripts with step by step instructions for setting them up.

Scriptsearch www.scriptsearch.com
Claims to be the world's largest script archive. Plenty of links to Perl, Applescript, VBScript resources and more.

CGI Resource Index www.cgi-resources.com
CGI Resources contains introductory and intermediate tutorials on CGI scripting in Perl. It also offers a number of production quality scripts, explained line by line.

CGI City http://icthus.net/CGI-City
Check out CGI city's collection of CGI tips and tutorials as well as hundreds of links to documents, articles and tutorials on the subject of CGI.

Bignosebird.com http://bignosebird.com/index.shtml
Designed to provide meaningful information to novice and intermediate webmasters.

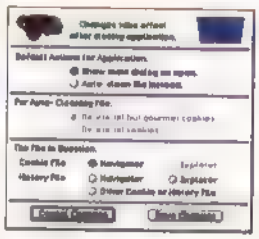
Dave's Perl(CGI) Page http://upstatepress.com/perl
A free collection of simple CGI scripts written in Perl.

The Perl Archive www.perlarchive.com/index.shtml
The Perl Archive is a directory of CGI/Perl programs with over 750 listings. The Archive is updated daily.

Virtual Resource http://cgi.vresource.com/cgi
Large collection of C/Perl/Java CGI scripts spanning bulletin boards, chat, cookies, calenders, counters, database, guestbooks, port access, logs auctions, passwords, redirection, searching, surveys, Perl books and lots more.

Cookie Commander

Protect your anonymity online by getting rid of unwanted cookies. Cookie Commander is a neat utility that runs in the background, giving you total control over the cookies to trust or reject.
Price *$10 (around £6.50)*
Platforms *Mac*
Download size *60k*
ftp://macware.erehwon.org/pub/mac/Cookie Commander 1.0.1.sit

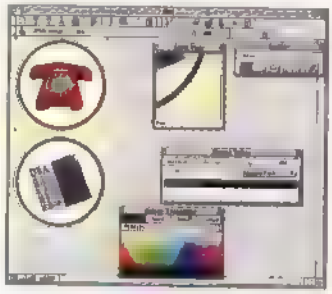


DNTools

DNTools is a set of tools for optimising, monitoring and troubleshooting your dial-up networking settings. It gives you a graph of your connection speed, a DUN settings optimiser and a new email announcement. It'll also make sure you stay connected. If that's not enough, the log file keeps track of your connection statistics, time spent online and phone charges.
Price *$12.95 (around £8.50)*
Platforms *Win9x/NT*
Download size *972k*
www.atmosoft.com/DNTools/index.html

Image Mapper

ImageMapper creates accurate image maps that are easy to maintain. Drop your image into it, draw a circle, square or polygon around the hotspots and specify the URL links, and presto – instant, clickable image maps. All formats are supported, including Client-Side, CERN and NCSA. ImageMapper will display and convert graphics files in a variety of formats.
Price *$10.00 (around £6.50)*
Platforms *Mac*
Download size *1.09Mb*
www.dcs.gla.ac.uk/~snaddosg

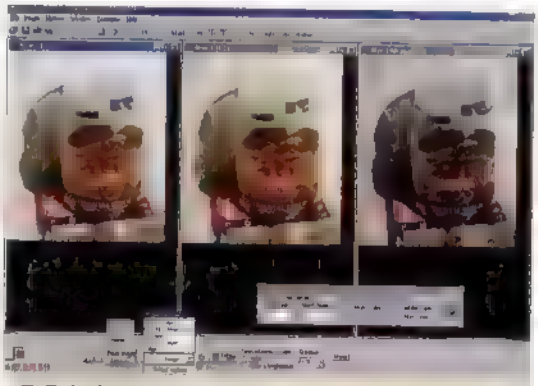


Version Master

Take the hassle out of keeping your software up to date. Version Master is based around an online database of 60,000 Mac programs. Your versions are updated whenever you visit the Version Master Web site. You're sent an email notification when updates, new versions or patches for your software are released. It also works with Sherlock.
Price *$19.95 (around £13)*
Platforms *Mac*
Download size *1.94Mb*
www.versionmaster.com

Sonique

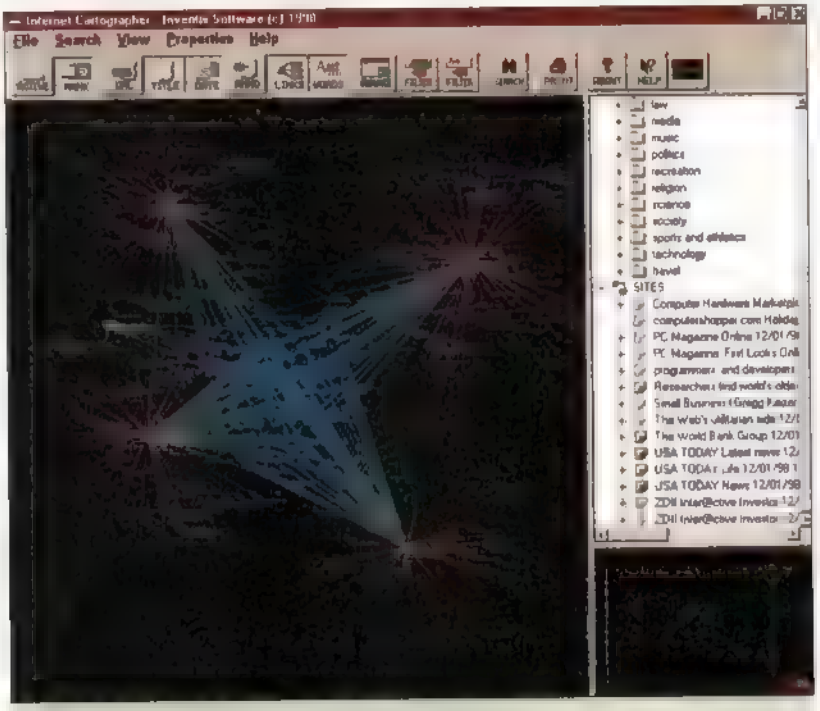
Sonique is a Windows audio player that'll play MP3s, Microsoft Windows Media files, audio CDs and more.



COLOR PILOT

A colour correction program that's ideal for working with scanned and digital camera images. Color Pilot uses a patented technology to transform dull or flat photographs into natural and vibrant-looking images. Choose a colour to change, then select the colour you want to change it to. There's no messing with complex colour channels – the software works intuitively and gets amazing results.
Price *$36 (around £24)*
Platforms *Win 9x/NT*
Download size *2.3Mb*
www.glasnet.ru/~rais

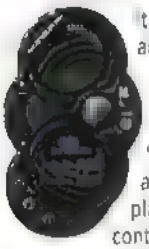
OVERHEARD "I am concerned that a number of programmes continue to show slippage." Margaret Beckett on Government departments' preparation for Y2K



INTERNET CARTOGRAPHER

Internet Cartographer is a unique tool that combines a bookmark utility with a search engine and charts the relationships between Web documents. As you browse the Net, it analyses and records the keywords in the Web pages you visit, building a map of shared terms, categories and links. The relationships between the millions of different sites makes for some complex-looking charts, but there's a handy tool to help you zoom in on what you want. Cartographer automatically categorises the sites you visit in a hierarchy of over 500 predefined sites. If you're into Net-based research, IC could be the perfect aid.

Price *$49.95*
Platforms *Win 9x/NT*
Download size *1.11Mb*
www.inventix.com



its funky interface and animated menus can be enhanced by downloadable 'skins'. Sonique also includes a playlist editor, controls for changing pitch, balance and volume, and a 20-band equalizer. You can download 'output visualisations' – disco lights to the rest of us. This is a great alternative to Winamp and it's free.

Price *Free*
Platforms *Win9x/NT*
Download size *2.4Mb*
www.sonique.com

Search By Media

Search By Media is a media retrieval tool that scours the Net for movie clips, audio files or images. Enter the name of an artist and SBM scans in the background, eliminating the tedious process of trawling through Web pages. When it finds a file, SBM launches your browser and displays the links it's found.

Price *Free*
Platforms *Win9x/NT*
Download size *1.3Mb*
www.searchbymedia.com

Color & Metatag Buster

This useful tool takes some of the tedium out of coding your Web pages and could help to get your site noticed. Buster creates META tag keywords for your pages, which can increase your hit count. It also features a colour picker to convert your choices to hexadecimal values. And there's a signpost editor to attract more hits to your site.

Price *$15 (around £10)*
Platforms *Win9x/NT*
Download size *960k*
www.tashcom.com

Cool Ruler

Take the guesswork out of sizing images for your Web pages. Cool Ruler can be dragged around the screen, resized, scaled, flipped and marked. Measurements can be set as inches, pixels and centimetres, and you can have as many Cool Rulers running on screen as you like. Definitely one to add to your toolbox.

Price *Free*
Platforms *Win 9x/NT*
Download size *885k*
www.fabsoft.com

SMILEY GUIDE TO INTERNET USERS

SCREAMING.NET

AGE: Ten years older than when they joined a month ago.

APPEARANCE: Gaunt and haggard, with dark rings under bloodshot eyes. New users look angry, longer-term subscribers look hopeless. Many have resumed smoking after quitting five years ago, others have added vodka to the weekly shop.

HANGOUTS: Most of their time is spent clicking the Screaming.net connection icon. This is interspersed with occasional sessions online with Freeserve to send emails to Localtel customer service and *Internet Magazine*'s Mailbox page. Rare excursions from the house to buy more vodka, Benson & Hedges and to shout at strangers in the street.

KNOWN ASSOCIATES: None these days. Self-help groups are springing up in some towns. Dangerous alliances forming with British Airways and Virgin Trains customers could lead to mass vigilante activities.

LIKES: Anything from Leonard Cohen, through Joy Division to The Verve, according to age. Hieronymous Bosch, vodka and oblivion.

HATES: Tempo shops, Screaming.net, Localtel and all the bastard magazines that publicised the service.

IN OTHER WORDS: An Internet user wooed by the promise of free access calls and a permanent connection, now crushed by the fear of slow phone service transfer, endless engaged tones, ignored pleas for help.

PHILOSOPHY: There's no justice in this world.

LATEST FAD: Looking in gun shops.

MOST LIKELY TO SAY: "What did I do to deserve this?"

LEAST LIKELY TO SAY: "Change phone company and ISP, mate, that's what you should do."

MORE FROM: www.screaming.net

OVERHEARD "I want a cup of coffee, please, now." Kali the chimpanzee, using a specially adapted computer at Georgia State University's Language Research Centre

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MP3 music continues to spread. Hard disks across the world are filling up with songs in this highly-compressed Internet format. And portable players are available if you want to listen to your MP3s on the move. Manufacturers include Goldstar, Samsung, Saehan, Thomson, Pine and Diamond.

The great thing about MP3 players is that they don't have moving parts. All the songs are kept in solid state memory. The first generation of players had 32Mb of memory, which gave you about an hour of music. Diamond Multimedia was among the first companies to make them, and it's now become one of the first to boost the player's memory to 64Mb, doubling the playing time.

Not all record companies have embraced the MP3 format – some are worried about it encouraging piracy. But Diamond has persuaded the Universal Music Group – which includes A&M, Island, MCA and Motown – to supply music for the RioPort.com Web site and for SDMI-compliant Rio portables.

SDMI is the Secure Digital Music Initiative, an industry group that has developed a security tagging system for MP3s to reduce copyright infringements.

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OVERHEARD "We're people too, kids and teens have feelings! It's heartbreaking to thousands of us." US teenager on AOL's decision to stop using teen volunteers to monitor chat rooms

We have a Web design winner!

Internet Magazine has chosen Fig21 (www.fig21.com) to design its new site. The company was selected from a shortlist of three companies that took part in our Web design challenge.

It was chosen as the best entry by a panel of expert judges. Readers also though the Fig21 entry was the best. "It gets my thumbs up," said reader Owen King. "It's smart, logically laid out and gets to the point," wrote Claire Iveson. "This site has sex appeal, an interesting and stimulating layout... mmm nice."

"We're confident that the *Internet Magazine* site will provide an excellent example of a brand harnessing the medium's potential," said Daryn Forster, MD of Fig21. "The team at Fig21 are 'dead happy' to have won, and are eager to begin the project."

The new site launches in the autumn. Watch this space!

Correction

Last month's article *Get your site to take credit cards* contained some inaccurate information on payment service providers (PSPs).

Secure Trading charges start from £295 a year. Transaction charges are normally percentage-based, to a maximum of two per cent. At this rate there are no minimum monthly fees. For large volume or rate transactions, the billing can be on a per-transaction basis. There is a choice of fee structures available.

The company offers multi-currency facilities, free technical support and a variable payment day. Clients can use the company's Secure Socket Layers (SSL) enabled servers or use SSL software provided by Secure Trading on their own systems.

Transaction fees for NetBanx range from one per cent of sales to eight per cent, with no minimum monthly payment. All the PSPs mentioned in the article are officially approved for the UK, with the exception of eBanx. Authority no longer offers a PSP service.

TRENDSPOTTING

Oursurveysays...

This month we ponder that all-important issue – are UK businesses harnessing the power of the Net to the full?

The Rainier Group (www.rainierco.co.uk) claims many company Web sites offer little more than 'online wallpaper'. In a survey of the FTSE 100 companies, no less than 26 of them – including BAA, CGU, NatWest and Tesco – failed to respond to the request for basic investor information after a wait of more than 100 days.

A further 16 companies, including Bass, ICI, Orange and Vodafone either did not have a Web site, could not be contacted by email, or email contact details were not easy to find on their sites.

The UK's most responsive company was mining and metals group Billiton (www.billiton.com), which replied to a request within one minute. At the other end of the scale, Boots (www.boots.co.uk) took over a month to respond. The report concluded that having a Web site without a direct feedback mechanism is like having a freephone helpline with no receptionist.

We all know that spending a fortune building a stunning site is no good if people can't access it quickly. According to a report from Zona (www.zonaresearch.com) in the US, customers are put off from trading at slow sites. More than a third of users will abandon an online purchase because it takes too long. The report said it was typical for an e-commerce merchant to lose up to $4.35 billion in sales each year, if a Web site does not maintain an average download time of eight seconds.

But UK business believes the Internet has the power to change the way we work. According to Booz-Allen & Hamilton (www.bah.com), 92 per cent of executives believe the Internet will reshape business strategy and the marketplace.

When MCI WorldCom (www.wcom.com) carried out a similar survey, it found 68 per cent of those surveyed said the Net had reduced costs, while 63 per cent said it improved the quality of customer service. Not if companies don't answer their emails it doesn't!

The Net is also an important tool for business meetings – 75 per cent of respondents have emailed a presentation to meeting participants, while 46 per cent have met via online chat. And 29 per cent of those surveyed had attended a virtual seminar. Over half of them said the Net improved their job satisfaction and reduced stress levels.

The bad news is 70 per cent of executives said they didn't expect to see a return on investment from the Net until 2001. Still, that's only two years away..

WHAT ARE YOU LOOKING AT?

Favourite sites of real people

Jane Hill, 36-plus, exotic dancer
www.2dayfm.com.au
"I can listen to the radio in Australia before I go to live there."

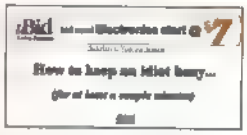
Matt McMullan, 25, advertising executive
www.lufc.co.uk
"It's the best way of keeping up with my team's news."

Martin Cattell, 28, computer programmer
www.download.com
"It's quick, easy and has tons of stuff I need. Sad, aren't I?"

Ruth Anderson, 35-ish, marketing consultant
www.hampsterdance.com
"Because it has a dirty laugh, like me."

THE WILD, WILD WEB

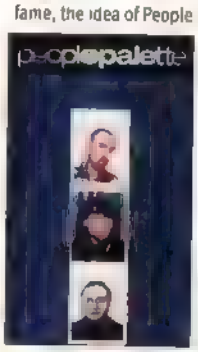
■ If you have a few minutes to spare, why not visit the How to keep an idiot busy... site. There's not a lot to it – just a button that says 'press'. So that's what you try to do. But nothing in life is that simple. It's a mad waste of Web space, but quite diverting
http://junior.apk.net/~jbarta/idiot/idiot.html



■ You like irreverent music, film, TV and entertainment stuff that's surprisingly well written. You also like toilet humour and punk Web sites. Then you'll also like Bubblegum, the bizarre online magazine. The psychedelic ezine greets you with the words 'Hello there, fatty,' and you're in. Check out the top 10 lists. It includes Carry On films that never were, including Carry On Follow That Muslim and Carry On Burma Railway. This really is the site that put the 'ass' in class. Well worth a look.
www.bubblegum.com

■ The X-Files has a lot to answer for. A prime offender is this conspiracy/paranoia site. It covers the lot, from the usual, run of the mill alien abduction and UFO stuff to the more crazy Satanist, big brother and freemasonry material. Just be aware that, while you're looking at the site, Microsoft, the Government and MI5 are scanning your computer for details about your life
http://mafia7.cjb.net

■ Since we're all after our 15 minutes of fame, the idea of People Palette has a certain attraction. The idea is to get as many people as possible to send in passport photos of themselves. These are then put on the site. The idea might be attractive, but the results certainly aren't. See for yourself and – if you're brave enough – submit your boat race for the world to see
www.dotco.co.uk/peoplepalette/index.htm



THE COMPLETE A-Z OF BUILDING AN E-COMMERCE SITE.

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ACTINIC easy to do business with.

BACKING A WINNER

Betting on the Internet is set to become big business, but UK bookmakers have been slow to embrace new technologies. Richard Dinnick finds one company with its nose already in front

In days gone by, if you fancied a flutter, you'd have to head for the high street and wade through a smoke-filled betting shop, kicking as de small blue pens and piles of screwed up betting slips. You'd have to deal with arcane jargon (not to ment on that arm-waving performed by John McCririck of Channel 4 Racing, called tic tac). You'd also have to dodge a scary collection of punters and approach the turf accountant, know ng you d'dn't have a clue what you were doing.

These days, putting a bet on the 3.15 at Newmarket, on Sunderland to win the Premiership or even on the .evel of the FTSE at the end of the year, is a mere mouse click away thanks to Blue Square (**www.bluesq.com**), the UK's first online gambling site.

The basic premise – betting online – is straightforward, but the Web mechanics are anyth ng but s'mple. The site is owned and operated by spread betters City Index, but was built by a consort um of the Web designers, Blueberry Group (**www.blueberry .co.uk**), the bett ng engine builders, Orbis (**www.orbis-tech.co.uk**) and online payment spec alists Datacash (**www.datacash.com**).

Successful UK bookmakers, such as Will am Hill (**www.williamhill.co.uk**) and Ladbrokes (**www.ladbrokes.co.uk**) don't let you place a bet if you're a UK resident. Blue Square has therefore stormed ahead of the market. "The majority of betting organ'sations in the UK are scrambling for the tax-free dream," explains Piers Hogarth-Scott, director of Blueberry New Media. "That doesn't interest us because we want to stay on the right side of the law. It reassures people."

"The high street bookies haven't embraced the technology," agrees Martin Be.sham, MD of C'ty Index. "But it's given us the opportunity to get in there first and learn a lot more about the business."

The name game

City Index was keen that its new betting site shou d be as far removed from the traditional, dingy image of the bookmakers as possible. The first stage of th's process was choos'ng the right name for the site. "We went into this market to set up a new brand," explains Dam an Cope, who manages City Index's Blue Square operation.

"If you're W illiam H ll or Ladbrokes, and you set up something nteract ve, you're still the same company. You're stil associated with everything that you've done before. We didn't want that problem."

Brainstorm ng sessions to come up with an appropr ate name went on for days. The creative and management team went through thousands of key words, all of which had three provisos – that they had noth ng to do with bookies, betting or, strangely, the Internet.

"We didn't want to stress the del very mechanism," says Be sham "Includ ng the word 'online' or 'Net' is a bit like calling yourself a supermarket if you're a supermarket. It sounds great if you're the first, but when everybody has a supermarket it just sounds silly. We wanted a name that would have some longevity."

Belsham and Cope wanted to use 'blue' in the name. "We just sat there saying 'blue chair,' 'blue window,' 'blue door,'" laughs Cope.

They also wanted to give the name a sense of being a physical place, hence 'square'. Bluesquare.com was already registered, so the company chose Bluesq.com.

The name Blue Square was only one of the finalists. It wasn't the only concept to use blue in the title. "Yes, we came up with Blue Oyster," adm ts Belsham. "But we real sed the Blue Oyster was the gay bar in *Police Academy*. We had some logos drawn up, but it didn't get to the final stage."

Cope takes up the story: "Blueoyster .com was available. So, if you're setting up a gay club, you know where to go." The company narrowed it down to just three names. But when the designers presented the different versions of each idea, there was no argument – it had to be Blue Square.

BLUE SQUARE

www.bluesq.com

For being the first and largest online betting site open to UK residents, BlueSquare is our Site of the Month

DESIGNERS
Blueberry Group

DEVELOPMENT TIME
One month

COST
An undisclosed five-figure sum spent on development

SIZE
200Mb

NUMBER OF PAGES
100

LAUNCHED
June 1999

The selection of football bets at Blue Square covers all the English and Scottish leagues, as well as internationals

The design process

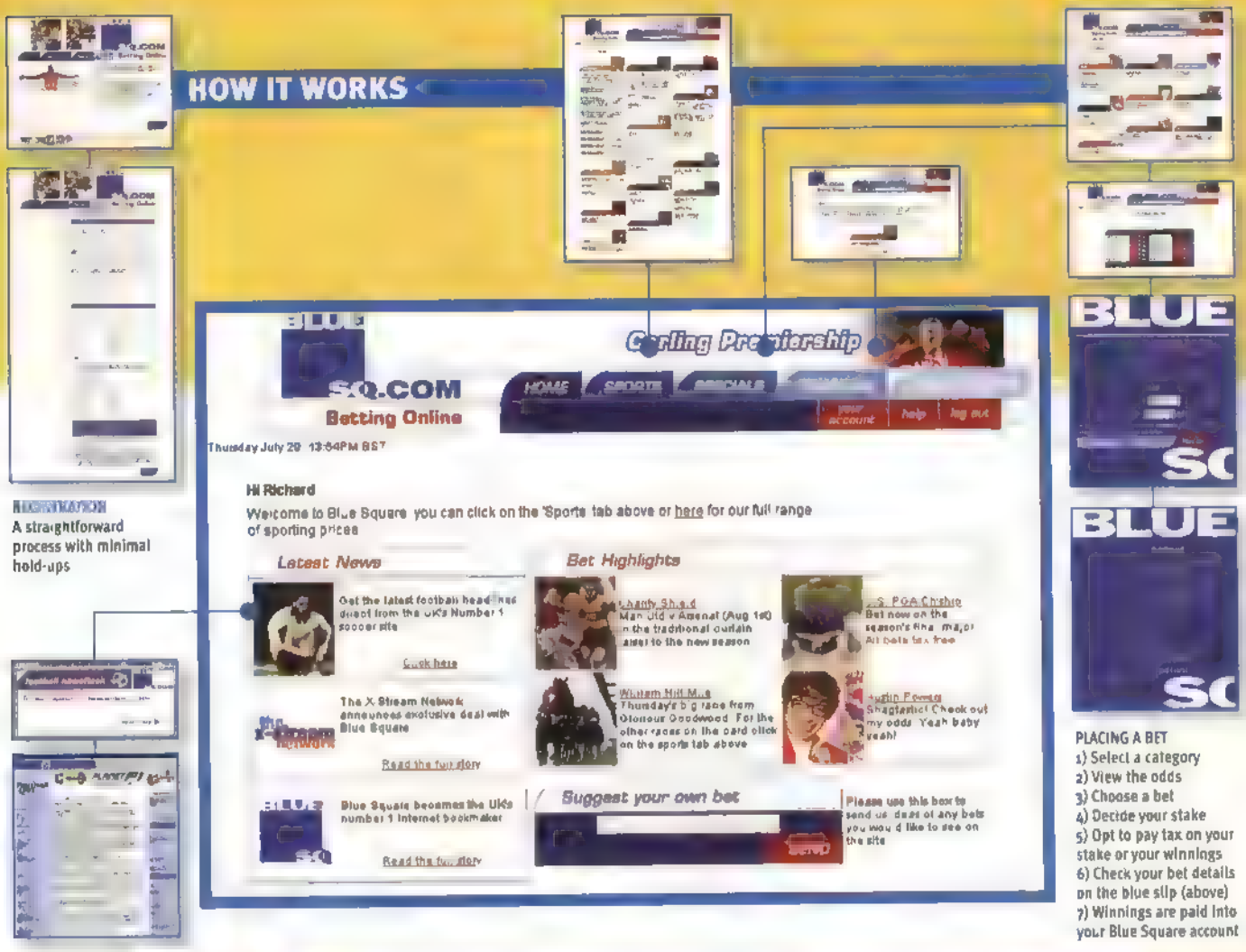
The first design idea that Blueberry had for the s te was a mass of blue squares forming a background for text, pictures and links to be placed on (see the concept sketches, right).

But this dea was abandoned in favour of an easy, clean design.

"We wanted it to be as simple as poss ble," says Be.sham. "White is a popular colour on the Internet, so we decided to use that. We always try to keep the site look'ng clean and fresh."

The plain approach soon developed into a nascent vers on of the site that exists today, using tabs for

HOW IT WORKS



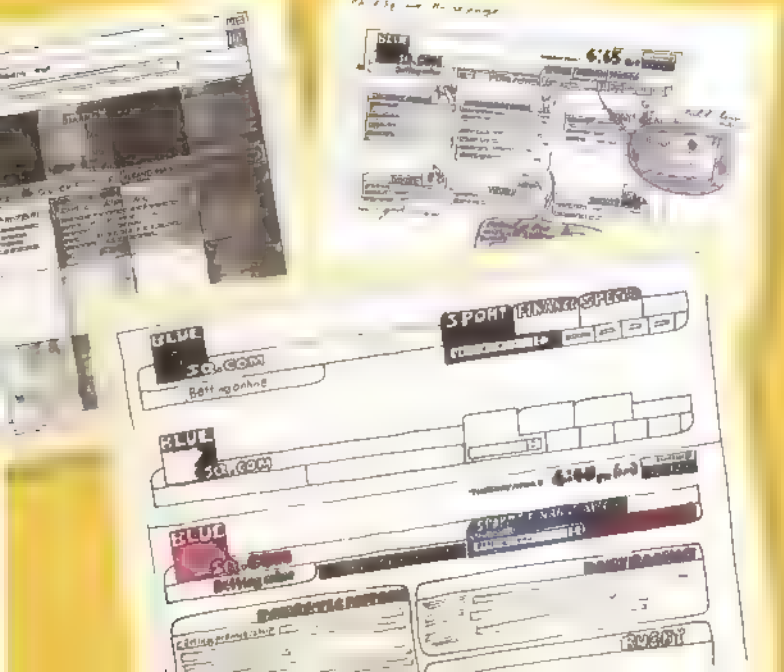
NAVIGATION
A straightforward process with minimal hold-ups

PLACING A BET
1) Select a category
2) View the odds
3) Choose a bet
4) Decide your stake
5) Opt to pay tax on your stake or your winnings
6) Check your bet details on the blue slip (above)
7) Winnings are paid into your Blue Square account

DESIGN PROFILE

Blueberry Group

Established in 1989, the Blueberry Group consists of three limited companies – Blueberry New Media (which designed the site), Blueberry Design and Blueberry Source. Among others, the Blueberry Group has designed and implemented Web sites for Fat Face, Computer Exchange, Ted Baker, CNN and Polygram.



Ben Sellers

Before co-founding the Blueberry Group, Ben Sellers set up Vista graphics, one of the UK's leading graphic design houses, which later merged with Blueberry. He's responsible for the management and development of the Group, and focuses specifically on strategic development and building alliances with new strategic partners.

"Our main position as a design agency is to make damn sure we use the latest, coolest software that'll increase our business or improve how we look after our customers."

Piers Hogarth-Scott

Before joining Blueberry in 1997 Piers Hogarth-Scott worked for some of the world's top advertising and new media agencies. He's in charge of e-commerce and strategy. He appeared in *Business Age*'s Internet Hall of Fame as one of the top 50 entrepreneurs to have made a significant contribution to the Web and e-commerce.

"In an ideal world, we'd prefer never to work with HTML again, simply because it's a science, not a design tool. Flash is a design tool, but the reality is Flash doesn't have 100 per cent penetration."

It couldn't be easier. Just check the odds, pick your horse and click on BET

navigation in the same style as Amazon (**www.amazon.com**). "Tabs are very Amazon-like," admits Belsham. "But why try to re-invent things? The Internet's a perfect medium for learning what's good and what's bad very quickly. For instance, we decided early on that we didn't want to use frames."

Blue Square made sports betting the site's primary category. But it's added two specialist sections for bets that you'd normally have to ask a bookie for at the desk.

Dealing with financial markets, as well as bizarre 'specials,' these sections cover such wagers as how much money *Austin Powers: The Spy Who Shagged Me* would take in its opening weekend or whether it's going to snow on the first day of the new millennium.

"We hope to educate society. We're saying it's OK to have a £10 bet from time to time."

"City Index had only been dealing with sports betting," explains Hogarth-Scott. "We wanted to use a modular approach that would let us add other bits and pieces."

But the emphasis is still on sport, and Blue Square will be launching a sports information service in the near future. Football 365 (**www.football365.com**) is already on board, and will let serious gamblers do their statistical research before they part with their money.

There are also plans to spread this programme to third parties. "Hopefully we'll be in a situation where, on top of Football 365, we'll have Cricinfo (**www.cricinfo.com**) doing the cricket, Scrum.com (**www.scrum.com**) doing the rugby, and PA (**www.pa.press.net**) or Racing Post (**www.racingpost.co.uk**) doing the racing," says Ben Sellers, director of the Blueberry Group.

A crucial part of the site is the betting engine that provides punters with secure online gambling. Orbis, the Web integration specialists, worked closely with the Blueberry Group and Datacash to develop the site around its Informix-based database and gambling system, called OpenBet.

One of the most amazing aspects of Blue Square's design was how fast it was put together. "From pitching for and winning the business to producing the site was about one month," says Hogarth-Scott proudly.

"It wouldn't have been achieved in that speed if the three parties – four if you include the client – hadn't had some experience of working together." Another major factor was the Blueberry Group's team of six people that worked on the project from day one.

Legal and moral issues

Two questions that continue to hound Blue Square are the morality and legality of online gambling. City Index has certainly ensured the site is legal, but the morality argument is more difficult. "We don't want anybody betting on the site who isn't 18 years old. Absolutely not," explains Damian Cope. "We'll do checks on people who we think are betting underage."

Of course, you don't have to be 18 to have a credit card – 16 year olds can have a legitimate credit account, but they're still not allowed to bet. "There is a risk of those people owning Switch cards or Visa cards," says Cope.

Blue Square is keen to stress that if an underage gambler does get hold of his or her parent's credit card and places a bet, they'll probably be buying CDs or games online, too. "In many ways that's a domestic issue," says Belsham. "We haven't got any control over it."

In the registration process, there are two occasions when subscribers have to verify that they are over 18. One is part of the terms and conditions, and the other is a separate box stating 'I am over 18'. You can also only register one card at a time.

"The trouble is, it's hard to police," says Belsham. "The onus is on us when a bet is placed. In a worst case scenario, we'll pay the money back."

As we approach the millennium, Blue Square sees online gambling as just another form of entertainment. "Without wishing to sound arrogant, we hope to educate society," says Cope. "We're saying that it's OK to have a £10 bet from time to time."

What next?

The future holds plenty of developments for Blue Square, the first of which will be a Shockwave Flash version of the site. The designers hope this will give Blue Square more of a CD-ROM feel. "It's going to be awesome," enthuses Sellers. "We'll have seamless pages of information popping up and windows dropping down."

Sellers is keen to help those he calls the 'chicken soupers' (those not keen on new plug-ins), so Blueberry will be sending CD-ROMs to all existing customers so they can load Flash without having to download it.

Blueberry will be taking the idea of one to one marketing a stage further when it launches My Blue Square. Like My Yahoo!, you'll be able to personalise the content you view on the site. "You'll be able to choose pictures of your sporting heroes from a photo collection because the site has secured a deal with Allsport, the international sports picture agency [at **www.allsport.com**]."

Blue Square will also be featured on Open (**www.open-here.co.uk**), the UK's first interactive TV service, which launches on Sky Digital this month. "The site has a simple design that will lend itself easily to a television remote control with up, down, left and right arrows," says Sellers.

Backing a winner

By 2004, the amount of money spent on internet gambling in the UK and the US will have risen from $535 million to $10 billion, according to market research specialist, Datamonitor (**www.datamonitor.com**). A lot of money is already pouring into Blue Square – the site takes around 10,000 bets a week.

It might not attract as many people as the lottery, but the Blueberry Group says this is a case of education. "People need to wake up and realise that they can make far more money if they bet on Blue Square," says Sellers.

Hogarth-Scott is equally damning. "You've got more chance of walking up to somebody in the street and guessing their telephone number correctly than you have of winning the National Lottery," he says.

City Index has hit the jackpot with its new site. You can sit and watch as the bets roll in at Blue Square's London HQ. The site takes more than 2,000 bets a day and the majority of stakes are between £2 and £600.

"We get some bets as big as £10,000," says Damian Cope with a grin. "The good thing about Blue Square is that it's fixed odds. Even my mother understands them."

WHAT THE EXPERTS SAY

Daniel Bonner
creative director
AKQA

Blue Square's Web site has the online betting game sewn up. The design won't gain creative industry accolades, but it's functional and simple to use. Loading time is fast and registration is easy. Open an account, place your bet, and before you know it you're staring at the television waiting for the outcome of an *EastEnders* plot to answer all your financial hopes and dreams. This service should be a successful platform for Blue Square's interactive TV betting venture.
www.akqa.com

Mike Saunders
creative director
LOUDMOOSE

An excellent site that's different to the majority of online gambling sites. Entering your details is a smooth and efficient process that lets you get straight down to the business of losing your money without waiting for your password to be sent via email. The site has a clean designed with no fancy icons. I particularly liked the news flash for breaking betting-related stories. For me, the downside of Blue Square is it doesn't capture the fun of standing in a nicotine-stained bookies watching your 'dead cert' limp in last.
www.loudmoose.com

You, the Internet and NetDirect...

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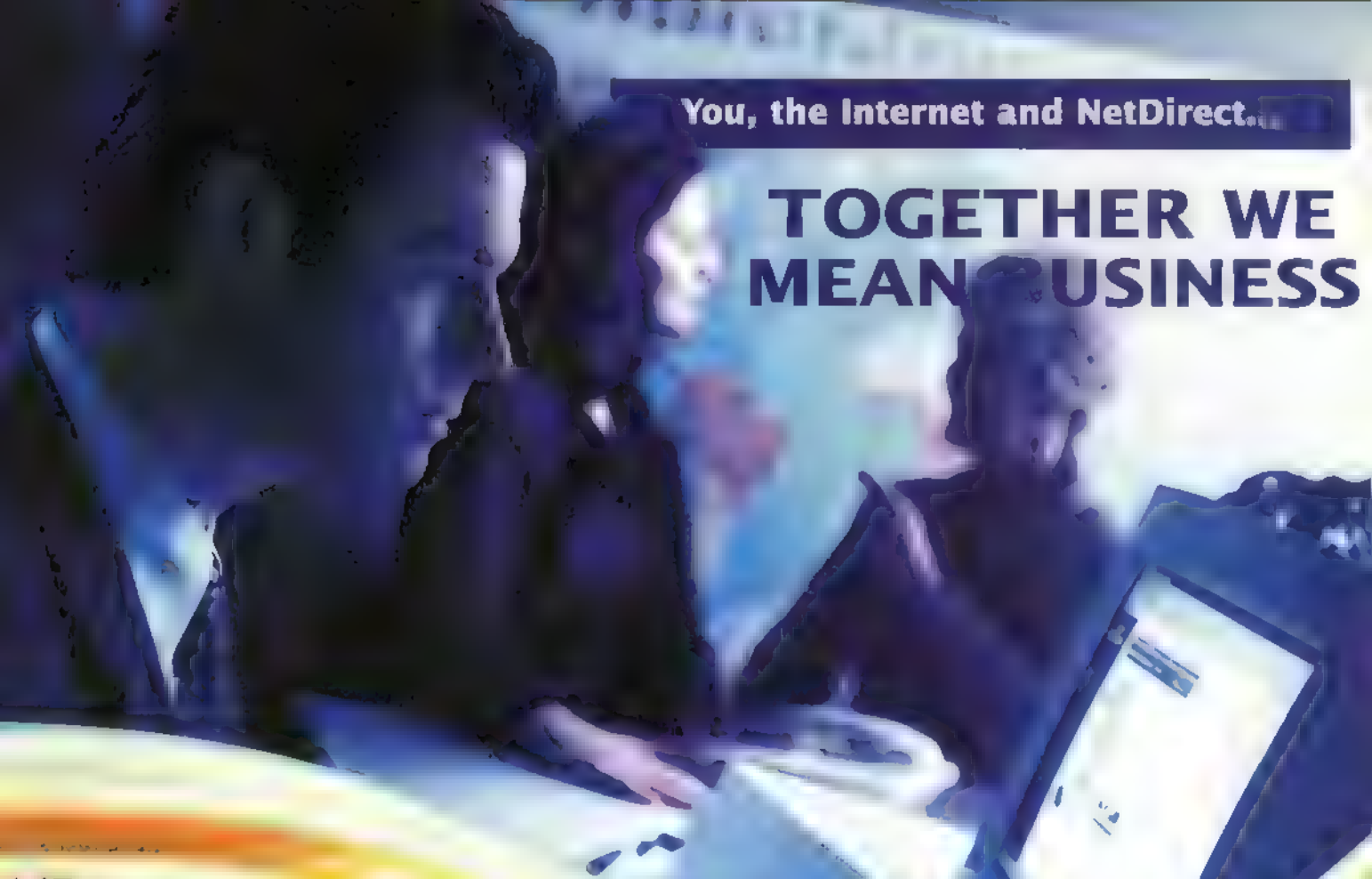

" The recruitment industry has been especially affected by the technology explosion of the last decade and Morgan Chase has benefited hugely from this. NetDirect gave us a tailored business solution, that has expanded as rapidly as we have. Reliability of service has been an essential part of NetDirect's solution." **Matthew Winfield, Director.** The Morgan Chase Group.

For business the Internet means, what was once an interesting possibility is now a competitive necessity, and is becoming essential for small, medium and large organisations alike.

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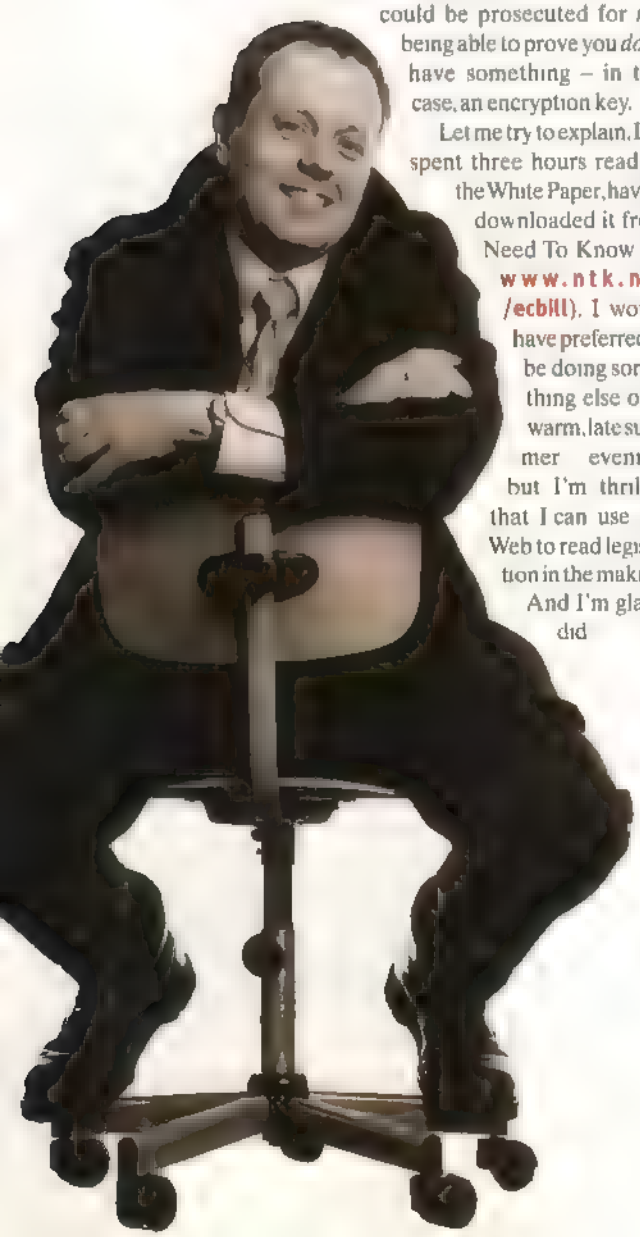
24 hour technical support line
Calls charged at 50p per minute
dialstart
your first call to the internet

Looking for the keys

The Government's Electronic Communications Bill aims to build confidence in Web trading. But Martyn Moore finds cause for concern, not least the prosecution of innocent Net users

How do you prove you don't have something? I can't prove to my girlfriend that I don't know where our spare house keys are. But she's convinced I had them last, so I'm responsible for their whereabouts. What can I do or say? How many jacket pockets do I have to empty before she'll believe me?

But how can anyone prove they don't know something? Because that's the problem we'll face if the latest draft of the Government's Electronic Communications Bill becomes law. You could be prosecuted for *not* being able to prove you *don't* have something – in this case, an encryption key.



Let me try to explain. I've spent three hours reading the White Paper, having downloaded it from Need To Know (at **www.ntk.net/ecbill**). I would have preferred to be doing something else on a warm, late summer evening, but I'm thrilled that I can use the Web to read legislation in the making. And I'm glad I did.

The Bill is supposed to help build confidence in trading on the Web. One of the biggest blocks to its success is the security of transmitted and stored private information. E-business can't grow unless people have guarantees that their transactions are confidential.

The best way to keep your information private is to encrypt it – put it in code using software to render it unreadable to anyone else. In any transaction, the sender and the recipient hold a key to the encryption, so each party can decode the other's messages.

"You could be prosecuted for not being able to prove you don't have something."

Unfortunately, there's a danger that encryption will be used by latter-day Guy Fawkes figures plotting subversive activities. Plans to blow up abortion clinics, co-ordinate racist attacks or distribute child porn can and are being hatched on the Net. Let alone infiltration of the Scagglethorpe WRVS.

The Electronic Communications Bill needs to provide legislation for dealing with encryption in the wrong hands. The original plan was to make everyone give a copy of their encryption key to a trusted third party.

When the police had grounds to suspect that something illegal was going on, the third party would give them access to the information.

But this has been downgraded to a proposed voluntary scheme. And we've got something far scarier in its place.

In this latest draft, you could go to prison for two years if the police suspect you have an encryption key and you can't prove you haven't got it. And you could also be arrested for telling someone they're being investigated.

My big fear is unsolicited email. I get email from a bloke who regularly asks if I'm going fishing at the weekend. I don't know him, my email address is nothing like his friend's, and I don't like fishing, but I reply now and again.

Suppose somebody starts inadvertently sending me their encrypted plans to put McDonald's out of business using vegetarian suicide bombers. How do I prove to the police that I don't have the encryption key to decode the information? I'll be done for as soon as they find out I prefer Burger King.

It's bizarre that my two greatest fears about the Electronic Communications Bill have nothing to do with the Internet. They concern free speech and the principle that everyone is innocent until proven guilty.

These issues could be the Bill's downfall. But that would be a shame, because the UK needs a coherent e-commerce policy.

Apart from Need To Know, there are some other good sites that'll keep you informed about the legislation, including Internet Freedom (**www.netfreedom.com**) and Cyber-Rights and Cyber-Liberties (**www.cyber-rights.org**).

You can also read some of the reactions to the DTI's e-commerce consultation document, *Building Confidence in Electronic Commerce*, on its site at **www.dti.gov.uk/cii/elec/ecbill.html**

Only 42 individuals commented on that document. So if you don't trust the European Parliament to throw out the Electronic Communications Bill, make sure you lodge your objections via email to **ecbill@ciid.dti.gov.uk**. You have until 8 October.

And honestly, Laura, I haven't got the bloody house keys!

Martyn Moore is the editor of *Internet Magazine*. He can be contacted by email at martynm@internet.emap.com

mailbox

Please send your thoughts and comments to martynm@internet.emap.com

Free the music

I enjoyed reading your editor's letter on MP3 compressed music files (July 1999). I have an 'illegal' MP3 site that does no harm to anyone at **http://listen.to/freethemusic**.

It has rock music from the '70s and '80s, so I don't believe my site will affect record sales in any way. As you implied in your editorial, MP3 can give potential record buyers a sample of an artist so they know what they're buying.

Video and TV haven't killed cinema as predicted, nor have tape recorders stopped people from buying CDs. MP3 will not affect record sales as long as the record industry accepts the format is here to stay and will develop over time.

The way to stop sites like mine, if that's what record companies want to do, is to provide fast downloadable music on their sites. Until they do, webmasters like myself will fill the niche, even if we have to break the law to do it.

Name withheld
freethemusic@connectfree.co.uk

Old joke

With reference to your *Silver Surfers* feature last month, I bet Justin Hunt won't be describing himself as a 'senior citizen' when he gets to 48!

Dave Pearson
bowscale@clara.co.uk

Cult gaps

The cult article in your July issue missed out some big sites. Sollog (at **www.sollog.com**) has a host of prophecies written in the style of Nostradamus. Go to dejanews.com (at **www.dejanews.com**), type in "Sollog" and dig among the abuse for a while. You'll soon see how important his followers think he is. The translations of Nostradamus on the site are considered particularly valid.

The False Prophet Web site (at **www.novusordo.com/prophet.htm**) is the home page of Benjamin Creme. Creme has been in the UK for a long time and would have de-Americanised your article.

Chris Sivewright
chris.sivewright@which.net

Tripod support

The reviews on free Web hosting services (July 1999) were interesting, but the review of Tripod concentrated on the UK site, which is still under development.

I have Web sites on both the US and the UK hosting service, and I've seen a dramatic improvement in the design and services on the UK site over the past few months. It still has some way to go to match the US site, but it's fast to log in to your site and upload your pages.

The UK site doesn't yet have the Pod sections you mentioned, but it does have an alphabetical directory of members' sites.

Since the article was comparing Tripod with other Web hosts, such as Geocities, it would have been worth mentioning services that the US version of Tripod offers:

- **FrontPage 98 and 2000 support**
- **A low cost premium service with 20Mb of Web space and a fast FTP service for premium members**
- **Lots of extra facilities for Web sites, including sell-through sites and news services**
- **Genuine help with Web page building**

As far as I'm aware, the Tripod banner (which can be eliminated for a small fee in the US version) only pops up when you first enter the site.

Phillip Brown
phillip.b@virgin.net

Those AOL discs

In the July issue you listed AOL discs in the mail as one of the top 10 causes of Internet rage. I agree, they are annoying. But they make great drink coasters for the office.

Sanjay
sanjay@exceed.co.uk

Ads on small sites

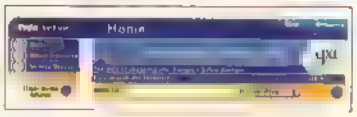
Having read Andrew Starling's *Getting started with advertising* (July 1999), I wanted to give some hope to smaller Web sites who might have had their dreams of carrying advertising dashed.

Andrew's article focused on site audience size, and the online advertising industry is currently trading on monthly page impressions. But there's a groundswell of opinion within the industry that this payment structure might mean we've lost sight of the nature of the Web.

Its interactivity and its ability to reach a quantifiable audience with defined interests is the Web's most exciting offering, not just a large number of eyeballs.

LETTER OF THE MONTH

My Freeserve won't time out



While online with Freeserve, I left my computer to download something, thinking the auto disconnect would kick in. But it didn't and I ended up online for a few hours.

I checked the time out facility wherever it appears, such as Internet Options, Dial-Up Networking and Modem settings. But a few days later, I was online for longer than I thought because the auto disconnect failed to work yet again. I noticed the Connected To icon was flashing every 10 seconds.

It seemed Freeserve was sending a signal every 10 seconds, and my modem was returning the signal. I watched the electronic lovers beeping away and wondered if this was preventing my computer from logging off. I checked my other dial-up accounts, but they disconnected when I left my computer idle.

Could this be a sneaky way of extracting more revenue from inexperienced members who forget to log-off? I contacted Freeserve, and it denied it sends this signal. But the company would, wouldn't it?

Peter Edwards.
Symbolism@bigfoot.com

Martyn Moore replies: **We contacted Freeserve and it also denied sending a signal, but it's looking into the allegations. Have any other readers noticed this problem?**

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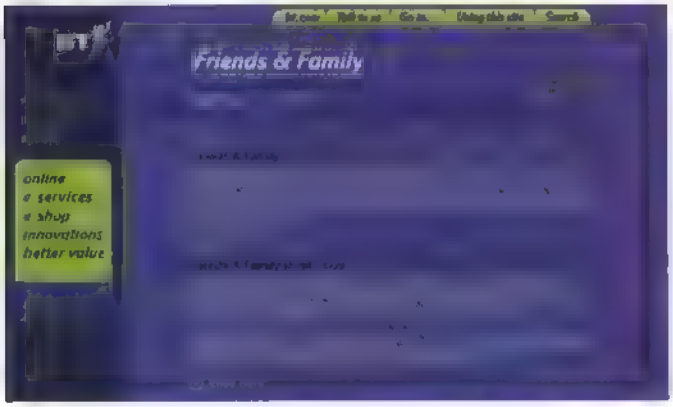

BT is fairly flexible about which numbers you can use for its discount services

Being small is not an obstacle to generating a valuable cost per mille (cost per thousand viewers) that's even better than a larger site. But to survive in the commercial world, smaller sites must be able to identify their visitors and their online behaviour.

Victor Synott, MD, TSMSi
vic.synott@tsmsi.co.uk

Andrew Starling replies: **I like the idea of small sites turning into big earners. But we must be honest and realistic – the article didn't say anyone can make a fortune from advertising, because this simply isn't true. Advertisers will either pay you for attracting a large number of people to your site or for specific visitors. As we mentioned, a small site might only attract 50,000 people a month. But if these are investment brokers, it can be 100 times more valuable than general visitors.**

Give and take

Why do ISPs quote a different Nominet fee to register Web domain names? It seems some ISPs make a big song and dance about giving away free domain names and then add money onto the Nominet fee in the small print.

Adrian Sill
adrians@fluxter.demon.co.uk

Andrew Starling replies: **Until March this year, you could buy your domain name direct from Nominet for a standard fee. But the process of registration has since been privatised. You now have to register through a hosting company or an ISP. They buy the name for £20 + VAT for two years, but they can charge you whatever they like or give it away in a promotion. It's become a consumer item, and that means you've got to shop around to get a good price.**

Man's best friend

I take issue with Craig Pickup's statement (Mailbox, July 1999) that BT won't let you use 0845 numbers as your Best Friend or Key Contact numbers. My home ISP is my Best Friend (sad, I know) and my company's ISP was going to be a Key Contact until the nice man at BT noticed we were paying even more for calls to an international number.

We've never been told we can't put special rate numbers on our Key Contacts list.

Julian Wattam
jpw@netcomuk.co.uk

Martyn Moore replies: **You can put ISP access numbers, such as 0345, 0645 and 0845, on your BT Friends and Family (residential) list or your Key Numbers (business) list. You can also call them your Best Friend or Key Contact for even larger discounts. But you can't use helpline or technical support numbers, such as 0870, 0970, 0990 or 192 as your Best Friend or Key Contact.**

Bottom line philosophy

"If you can't convince them, confuse them."
William Mercer

"Proofread carefully to see if you any words out." *Theresa Heapy*

"Not only do I not know what's going on, I wouldn't know what to do about it if did."
Alan Hawkesworth

"Walk softly and carry a big kebab."
Duncan MacLeod

"Speak your mind, but ride a fast horse."
Texas 'Bix' Bender

"According to my calculations... the problem doesn't exist."
Celeste Pazoul

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- Multiple Email routing

Price excludes naming authority fees

Magic SoHo £130pa
- 30 MB Web/hosting space
- Unlimited Email addresses
- Single Email routing
- Full FTP access and personal CGI-BIN
- Remote control panel via web interface
- Full graphical site statistics

Price excludes naming authority fees

Magic Standard £155pa
- 50MB web/hosting space
- Unlimited Email addresses
- 10 POP Email boxes
- Multiple Email routing
- Full FTP access and personal CGI-BIN
- Remote control panel via web interface
- Full graphical site statistics

Price excludes naming authority fees

Magic from the Heart £195pa

Special Package
- 75 MB web/hosting space
- Unlimited Email addresses
- 15 POP Email boxes
- Multiple Email routing
- Unlimited Email autoresponders
- Full FTP access and personal CGI-BIN
- Remote control panel via web interface
- Full graphical site statistics

Price excludes naming authority fees
£10 from this package is contributed to charitable causes

Magic Enterprise £255pa
- 100 MB Web/hosting space
- Unlimited Email addresses
- 20 POP Email boxes
- Multiple Email routing
- Unlimited Email autoresponders
- SSL secure server
- Full FTP access and personal CGI-BIN
- Remote control panel via web interface
- Full graphical site statistics

Price excludes naming authority fees

No hidden set up charges!

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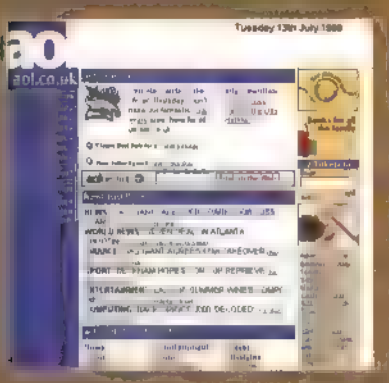
A right royal question

Free or paid?

Should one go free or should one pay for Internet access? After all, price isn't necessarily any guarantee of quality. At a time when the lines that separate ISPs are blurring, [redacted] presents the ultimate guide to help you find the ISP to suit your needs



AOL is still denying it will go to a free model but it seems likely it'll have done so by the time you read this

Times are tough at the Palace. In a bid to modernise her image the Queen has decided that the royal family should tighten its belts. The ostentatious days are over – it's not good PR to be seen sponging off the taxpayer.

In an interview in *The Sunday* [illegible], Sir Michael Peat, keeper of the privy, said the Queen has set limits on how often royal trains can be used, and there's talk that sleeper carriages might be sold off. The cash for the repairs to Windsor Castle is apparently coming out of the royal family's own pockets.

[illegible] that the Queen is a fan of the Net. She has her own Web site [illegible] Internet connection. But when we asked what sites she looks at, the official source mysteriously clammed up. "What the Queen does in her spare time is not open to public discussion," we were told.

With her budget being so restricted – she only has around £250 million to her name – she might be looking to change her ISP. But which one should she choose? Should one go free or should one pay?

[illegible] option, or are they be deceptively expensive?

[illegible] based ISPs on the market, and it can be a real headache to [illegible] week. To make matters worse, the difference between the [illegible]

What are the commoners choosing?

[illegible] The UK's five million Net users subscribe to free ISPs, but [illegible] strong relationship with just one ISP.

[illegible] 500,000 subscribers. Direct Connection, with over 40,000 [illegible] subscribers, is in a similar position.

[illegible] The success of free ISPs has turned the Internet into a mass market in the UK. Direct Connection hasn't record- [illegible] Connection account. Our customer base has increased [illegible] including ex-free service customers.

[illegible] tional Net services that free ISPs don't offer. A number of [illegible] Net users until Freeserve launched.

[illegible] ever unsubscribes from a free service.

[illegible] rather than contributors.

[illegible]

No such thing as a free garden party

[illegible] philanthropy – it's financial sleight of hand.

[illegible] UK after BT's privatisation.

Speed results

1 Cable & Wireless Life
2 FreeDotNet
3 Mitsubishi Electric Internet
4 UK Online
5 LineOne
6 Virgin Net
7 Freeserve
8 Free-Online
9 BT Click
10 Connect Free

Case Study 1
The poverty-stricken royal

Name: Duchess of York
Circumstances: Sarah Ferguson is the royal family dropout, but she seems to have more personality than the rest of the British royals put together. Fergie says reports of her lavish spending habits have been exaggerated, but she admits to having a multi-million pound debt. She now promotes Weight Watchers in the US and writes a monthly column for a woman's magazine. She's also done a number of chat shows for Sky TV.
ISP solution: She spends a lot of time in the US and frequently travels around the world, so AOL or CompuServe could be best. Both would give her access to the Net for the cost of a local call from a range of cities throughout the world. The bad news is they're not a cheap solution. Both charge around £100 a year for unlimited access. Screaming.net is our recommendation as you don't have to subscribe and you get free call access in the evenings. It's the ultimate in cheap access and ideal for any poverty-stricken royal exile.

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Reference Sites

Telinco Callshare Users
www.telinco.com
Yahoo!'s list of Free UK ISPs
www.yahoo.co.uk/Regional/Countries/United_Kingdom/Business_and_Economy/Companies/Internet_Services/Access_Providers/Free_Services
Comparitive table of telco charges
www.magsys.co.uk/telecom/index.htm
Top 10 Free ISPs – an opinion
www.h-h-l.co.uk
BT Interconnect site
www.btwebworld.com/interconnect
ISP Related Newsgroups
alt.internet.free-services
alt.internet.providers.uk
alt.internet.providers.uk.free

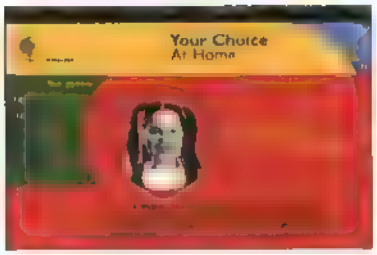
To even things out, BT has to operate in two separate ways. One deals with selling lines and services to consumers and charges you for your calls. The other half is BT Network Services, the place where BT and other telcos buy lines in bulk.

But Oftel can't demand information on the cost of the calls that BT Network Services provides. It can only prevent the cost to the consumer from rising. Oftel's regulations didn't alter BT's *de facto* monopoly on the the domestic copper telephone line. And like all good monopolists, BT charges far more for the service than it costs.

So BT Network Services has to sell access to the domestic market (through local numbers) – other telcos – at the same price as it sells to BT.

When another telco, such as Energis, buys numbers through BT Network Services – an 0845 number for example – the calls are switched from BT's network to the Energis network. BT still collects the call charge, but it passes on everything above the cost charged by BT Network Services to the other telco.

According to figures from CUT (the Campaign for Unmetered Telephony), for every penny collected by BT on behalf of another telco, 0.3p goes to BT Network Services and 0.7p goes to the other telco. It's called interconnect revenue. On this basis, BT is operating at a 233 per cent markup. Not bad for a company that claims it not to have a monopoly.



For a direct comparison of free and pay ISPs, check out the free and paid-for offerings from ISPs with both, such as Cable and Wireless or BT

In practice, the second telco can run its own ISP or split the interconnect revenue with other ISPs. Most do both.

BT's call charges are so high that BT, another telco and an ISP can all make a profit from one call. It's middleman heaven.

Inflated interconnect revenues have instigated a feeding frenzy - hence so many free ISPs. It gets worse. If your business plan is to get your snout in the trough, you can become a virtual ISP. BT, Telinco and others, such as the VIP consortium, sell off the shelf free ISP solutions.

The sensible alternative to the current free ISP model is a unmetered pricing of Net calls - a flat monthly fee for access with no time constraints. Roll on DSL

BT's solution is BTClick, Telinco's is Callshare. If you use Yahoo, MSN or Excite, for instance, you're really using BTClick. If you use Enterprise, CurrantBun or Tiny, you're using Telinco's Callshare.

Freeserve set up early with its own kit. Energis is the telco and provides digital modem banks – a service it also provides for paid-for ISPs. Freeserve users can usually make a modem connection, but they often can't get authenticated, or get access to the proxy servers. And many have slow connections.

But think about it. Freeserve gets its money from Energis, not you. Energis must handle all the calls because it's a telco, and Oftel's regulations require it to have spare capacity, but Freeserve isn't a telco and it doesn't need to be.

If Freeserve subscribers can't log on, it costs them 5p and Freeserve gets a share of the revenue. If you log on at 33,600bps instead of 56k, you'll just spend longer downloading pages and Freeserve will make more money. If you log on but you can't get to the Web because the proxy server's overloaded, Freeserve still makes a profit.

So what can we conclude from this? The free ISPs don't have to upgrade their systems as long as people are willing to keep using the 'free' service.

If you ring Freeserve and complain about low access speeds, no authentication, no Web browsing or broken email, it just makes even more money from the premium rate helpline. The free ISPs make money from BT's regulated monopoly, not by offering a better service to customers. The less they offer, the richer they get.

To maximise your chances of a decent service, use a free ISP that's owned and run by a telco. Cable & Wireless' Internet Lite or BT Clickfree offer a better service because they have a brand to protect.

"BT's call charges are so high that BT, another telco and an ISP can all make a profit from one call. It's middle man heaven."

Separating fact from fiction

Many criticisms have been levelled at free ISPs. So we put them to the test

1 They're difficult to install

In practice, they're no harder to install than the majority of paid-for ISPs – and we've had hundreds of installation experiences.

Free ISPs tend to target novices and try to be idiot-proof. They generally support only the largest market – Windows 95/98 – and use standard Microsoft software.

Many of the installation routines check that you're on a standalone PC and throw up error messages if they detect file sharing or local networking. This is to prevent people from installing them on internal company networks – which won't normally work with a dial-up ISP. It isn't a bug.

With a little effort you can use any free ISP on any computer with TCP/IP and a modem. We've got Freeserve and BTClickFree working on a box running Linux. It's fine.

2 They take over your computer

Most installation routines reconfigure your Outlook Express and IE4 to make them default to the free

The mad royal

Name: Duke Of Edinburgh
Circumstances: Prince Philip [illegible] dubbed the 'Great Wally of China' [illegible] the Mirror in [illegible] on a visit to Beijing, he warned a group of English students they shouldn't spend too long in Ch[illegible]d a year could be long enough "[illegible] native and come home slit-eyed". Racist comments.
husband could be the most computer literate of the whole Windsor clan. He was the [illegible] to produce his own correspondence on a word pro[illegible]r and he once told a conference: "The internet is a f[illegible]stic developme[illegible] but it difficult to estimate the harm it ca[illegible]o when it's exploited by the peddlers of pornography and other cro[illegible]
ISP solution: He's computer lite[illegible]so a free ideal as he's unlikely to need the premium rate helpline. Judging by his frequent use of old-colour comments, *internet Magazine* would recommend [illegible]gns up to a free ISP called Mad As A Fish.

Free or paid?

ISP service you've just installed. This means it changes your email address and points you at a new POP3 and SMTP mail server (unless, like MSN, it's only offering Web-based email).

It usually configures a DUN connectoid, which dials and connects to your new ISP. It might put an icon on the desktop and change the look of IE4.

Your browser is pointed at the home page of the free ISP and some, such as Freeserve, tell your browser to use a proxy server. They can also change your browser's branding.

If you sign up online, a lot of the free ISPs will give you a choice between an installation CD or the information you need to install the service yourself. After all, if you install it manually, it saves them the cost of a CD.

None of this is taking over your computer. If you have other ISPs installed their connectoids are still there and will continue to work. But if you install a paid-for ISP, a lot more can change as more services need to be configured.

3 The technical support helplines are rubbish

Most of the technical support for free ISPs is carried out by third party companies, such as Client Logic or Scottish Telecom, who take a large cut of the inflated support call cost. These operate first and second line support and often email and fax-based support for a host of companies.

As with most support lines, you'll usually be talking to someone who worked as a shelf stacker last week. They've usually done a two-hour training course and have a question and answer script to locate and fix the problem.

If their support scripts don't lead to a solution, they should pass you to the second line support. This is a more technical person, but they can't necessarily fix your problem. It might be nothing to do with your ISP, if you've trashed your registry or damaged a cable for instance. You also have to be able to describe your problem and understand their advice.

Only small-pay ISPs let you talk to the people who run the ISP's computers, but you probably won't understand a word they say.

4 The connection is slow

Remember, the longer you're online, the more money the free ISP makes, so it has every reason to take its time over the log-in and make you browse slowly.

Free ISPs have to pay their telco for the bandwidth used by their customers. If it's a choice between two customers connected at 32,000bps or one customer using a 64k ISDN connection, they'll take the two, thank you, and double their money. Fitting more users into less bandwidth is profitable.

Remember, they aren't promoting their service on high access speed but on free access. It's that word 'free' – it gets people every time.

More important here is the capacity of the servers. Some free ISPs have their servers hosted by the telco – Energis and Telinco, for instance, offer this service, as does Cisco. They have lots of bandwidth available, but it doesn't mean they have the capacity to take advantage of it.

If you're just starting with your free ISP, would you rather use a £1,000 PC as your Web server or a faster Hewlett Packard server cluster at 10 times the price?

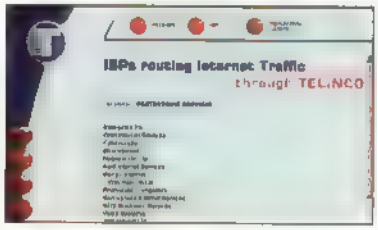
You don't need to please customers – they're coming to you because you're free, not because of your high technical specification and quality of your service.

Most free ISPs use third party support companies to provide you with help. Companies such as ClientLogic have benefitted from the free ISPs' unwillingness to talk to their customers

5 They're unreliable

The telcos are reliable and the basic software needed for an ISP can be bought from PC World for under £50 – most Linux distributions will do fine.

The phone and digital backbone systems that tie it all together are the same for paid-for and free ISPs. In practice, a lot of the problems new users experience are due to unrealistic expectations or unfamiliarity with computers and the Net.



Free and paid-for services share backbone providers, such as Telinco

On the other hand, free ISPs with a limited number of subscribers trying to operate entirely on interconnect revenues can find themselves with too many subscribers for their servers, but not enough revenue to justify an upgrade.

At this point, mail server databases can come unstuck and Web and authentication servers become mind-numbingly slow or refuse connections, depending on how they've been configured.

This rarely happens with paid-for ISPs because they're selling on the quality of their service, and because they deal with you rather than with a telco. Paid-for ISPs need to please you. Free ISPs need you to make calls. It's a fundamental difference in attitude.

6 It's lowering ISP quality

The paid-for ISPs are still here – none have gone into bankruptcy as far as we know. If anything, they're trying harder, as quality of service is all they have to fight the free ISPs.

Then again, there are more than 100 free ISPs. If the service from one becomes poor, you can move to another

AOL vs Freeserve

An example of what you can expect from free and paid-for ISPs

Freeserve
www.freeserve.net
Cost: Free unlimited access
Subscribers: 1.1 million
Email: Unlimited
Web Space: 15Mb (suitable for business)
URL of your Web space: www.yourname@freeserve.co.uk
Backbone: Energis
Technical support: 50p per minute
Content: Huge portal site with sections devoted to news, sport, business and entertainment. More unique sections include a legal help service, a cartoon area and a reference library. Most content is from outside sources.

AOL
www.aol.co.uk
Cost: £99.99
Subscribers: 600,000
Email: 5
Web space: 10Mb (not suitable for business)
URL of your Web space: www.member.aol.com/screename
Backbone: AOL
Technical support: Free
Content: Comprehensive. A mix of original bespoke sections and content taken from outside sources. Excellent chatrooms and regular opportunities for members to chat with celebrities online.

In business, communication is your critical tool

In theatre, the surgeon relies on the precision of his blade. It can make the difference between life and death. To the surgeon, his scalpel is a critical tool.

In business, communication is your critical tool. Netkonect understand this.

At Netkonect we are known as the backbone provider.

We supply the Internet connection for businesses including other service providers, where communication is mission critical.

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because in business, communication is imperative.

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- **Server hosting** - your server on our backbone with no leased line cost
- **ISDN solutions** - your company on the Internet via a single connection
- **Dedicated dial-up business packs** - via modem or ISDN
- **Re-seller agreements** - market our services under your name

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or find us at www.netkonect.net

netkonect
because in business, communication is imperative

free ISP, and the original service loses interconnect revenues. Even free ISPs have to compete for a limited resource call minutes.

This isn't a technical issue it's a customer service issue. Free ISPs don't need you as an individual. Anyone willing to make calls will do. It's cheaper to market free ISP services to new users who have no basis for comparison than to convince more experienced and demanding users.

Some people want quality and reliability, while others want something for nothing. The latter are unable to look beyond the word free. Which would you target? Which type of user are you?

7 Free ISPs offer fewer services

If they can sign you up without offering a news feed, for instance, it's a cost free ISPs will dispense with. The same goes for a proper POP3 mail server, multiple password protected email accounts, roaming access, original content, online Web page authoring systems, RealAudio servers, CGI support and spare capacity for reliability

Some free ISPs are now offering higher levels of service. Many of those using the VIP system, such as Tiny Online, offer multiple accounts and quality news feeds. Late entrants have to try harder.

"The free Net access model is a market aberration... and it won't last more than a year."

But as more services are available via HTTP and can be supported in a browser, the free ISPs see less reason for adding bells and whistles. For many new users, the Net is synonymous with the Web. They're quite happy to do everything in a browser, including email. This makes it simple and cheap to run a free ISP

8 They'll die out

One of the marketing slogans of free ISPs is 'Free for Life'. As with many lifetime guarantees, you'll notice it doesn't say whether this is your life, the life of the ISP, the life of high interconnect deals or the life of the MD's hamster.

Whatever Oftel does, lifetime service means it'll last while BT is more concerned with profit margins than market share. Under the current Oftel pricing regime, BT can only raise consumer prices by less than the rate of inflation The current round of pricing controls runs until September 2001, but Oftel is already considering its replacement.

Oftel doesn't care if BT lowers the cost of calls. BT still owns most of the copper lines into houses. But 50 per cent of all households have access to cable, and the cable companies offer cheaper telephony deals.

Around 30 per cent of those households have chosen to use cable. Cable companies now provide telephony to about 3.5 million of the 23 million households in the UK.

BT can live with this, but cable companies are rolling out cable modem services – NTL has it up and running in Swansea, for instance. BT now carries more data over its lines (in call minutes) than voice communication. This makes domestic Net access more important to BT's profitability than it lets on.

BT is rolling out domestic DSL compete with cable modems – albeit reluctantly. It knows domestic broadband services are the next big thing. Next year, Oftel is unbundling the local loop, which means you'll be able to change your telco without changing your number or dialling extra digits. You'll then be billed by the new carrier, including line rental charges.

WHSmith appears to have almost nothing to do with its free service beyond branding. For amusement value, compare it with MSN

If BT won't offer you unmetered DSL, for instance, NTL might, so you change telcos and no longer deal with BT. This also makes it easier to compare prices and possibly further cut BT's market share.

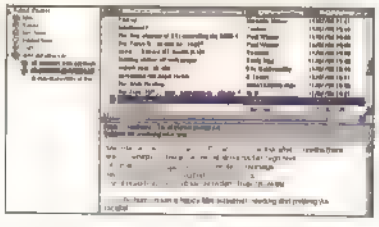
To counter this, BT could reduce the cost of BTClickFree calls (which it's done once already) or make them unmetered (with flat monthly fees) when DSL is released. This would reduce demand for DSL, which is expensive to install and will cut into BT profits. It'd also increase BT's share of the domestic Net connection market and head off the cable operators.

These and other changes, such as improved and cheaper mobile phone data access, could alter the structure of the marketplace and affect the viability of the free ISP revenue model

One thing is certain though, the free Net access model is a market aberration created by Oftel, and it won't last more than a year. Start campaigning for unmetered access now, or die soon.

If you use the Net a lot, do your sums. Add up the cost of all your failed connections, all the slow connections and all the service failures. If service failures are costing more than £10 a month, it's nothing like free – you're paying more for less. Check out the Internet-related newsgroups for other people's experience of free ISPs.

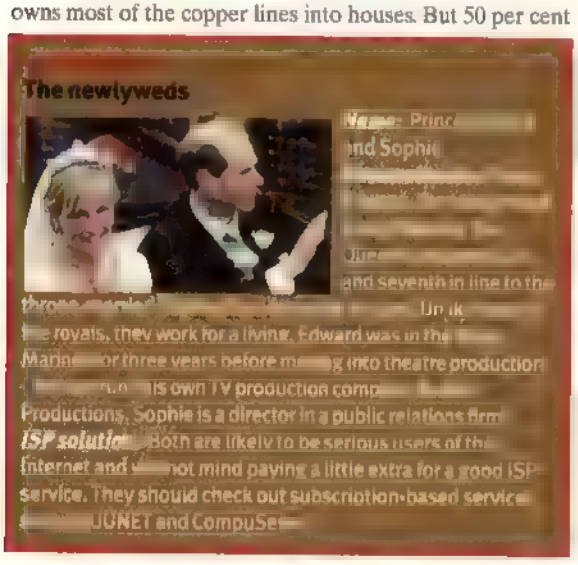
For those who want full access to all Net services, along with quality support, go with a paid-for ISP operated by a serious worldwide data carrier, such as UUNET (owned by MCI/Worldcom). There's a small fee, but you become a business partner instead of an anonymous call minute generator. You get what you pay for



There's a lot of discussion of free ISPs in the newsgroups, though little of it is analytical. But it does demonstrate the way the word 'free' disables the critical faculties

Only time is going to reveal how the ISP market will develop, but it's worth noting that £10 buys you around 12 hours of evening access at local call rates. That's three hours a week, or slightly below the average half an hour a day that home users spend online.

If average users spend half an hour a day, Net power users spend a lot more. This makes the extra cost of subscribing to a paid-for ISP a smaller percentage of your outlay on Net usage. Only you can decide whether £10 a month spent on extra speed, reliability and services with a paid-for ISP adds £10 a month worth of value to your Net experience.



Ever get the feeling your ISP hasn't got room for you?

Sound familiar? First, you can't get a connection. Or it's so slow you cringe at the thought of your next phone bill. Then there's support – thousands of new users, masses of calls to the help-line, total gridlock (that's £5 for a ten minute call with many 'free' Internet providers).

It's time you called Direct Connection. We always upgrade our network capacity ahead of demand so you're assured a high quality connection. In fact, using our nationwide access number you may never hear an engaged tone again. And our support was recently awarded top honours by Practical Internet .

For a better connection, call Direct Connection now on 0800 072 0000 or visit our website.

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- Flexible pricing from just £4.70 (inc. VAT); no set-up charges
- Unlimited email addresses
- 20MB of Webspace
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- BT Home Highway or Business Highway compatible
- Internet access at local call rates
- Global roaming; Internet Explorer browser
- 7 day-a-week technical support at local call rates
- Corporate services available

Call now on 0800 072 0000

May '99

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EXORCISING THE DEMONS

Cliff Stanford, managing director, Redbus

One man single-handedly revolutionised the ISP industry by offering cheap Internet access to the masses and now he wants to do the same with Internet server hosting. Steve Hill talks to Cliff Stanford, founder of Demon Internet, head of venture capital company Redbus, and Britain's 731st richest person

For serious analysis of the ISP market, most people wouldn't turn to the *News of the World*. The tabloid claims to cover 'all the news that's fit to print,' but Internet stories rarely make the headlines unless they involve 'authentic' X-rated pictures of the Spice Girls.

So it was surprising to see the *News of the World* on display at the HQ of Redbus, Cliff Stanford's venture capital company. The sight of a carefully clipped out article, framed and hanging on the wall was most bizarre.

The article tells the story of one man who became a multimillionaire by selling Internet access. His company started with just £20,000 in 1992, in the boiler room of a disused cinema in Southend, and was sold only six years later for £66 million, making that one lucky man a cool £30 million.

He is, of course, Cliff Stanford, and the company was Demon Internet.

Stanford has become the nearest thing the UK has to an Internet legend, with the rather large exception of Tim Berners-Lee. The question is, when you've only got 15 minutes to interview the man, what do you ask him?

To break the ice, we could chat about what it's like to be named as the 731st richest man in England by *The Sunday Times*. We could move on to how, in his days at Demon, he was attacked by *The Observer* for being a peddler of Net porn. The story was based on Demon's refusal to comply with Scotland Yard's request that ISPs stop carrying some sex newsgroups.

We could then chat about how he single-handedly revolutionised the ISP market with Demon Internet's 'tenner a month' subscription and how it went on to become the UK's most popular ISP. It seems ironic, in a market now dominated by subscription-free access, that in 1992 many ISPs complained that by charging £10 a month, Demon was undercutting the market and ultimately slowing the development of the Internet.

"Why would I want to set up an ISP when Dixons has done such a great job?"

We could even chat about his pink Rolls Royce (which was stolen recently), but perhaps this information is best left to the history books.

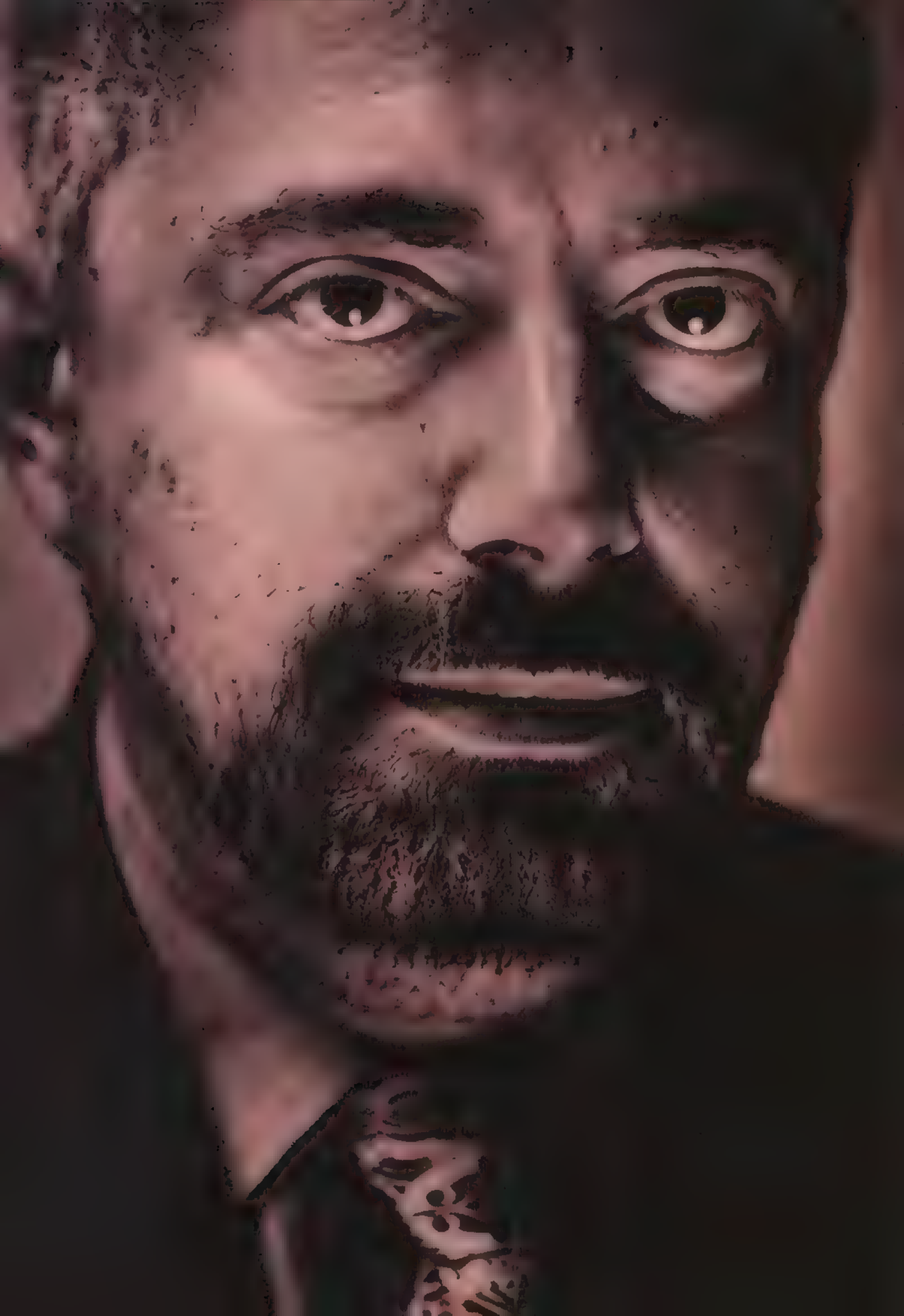
Stanford is still a major force in the Internet industry and his latest project, a Internet server hosting facility called Redbus Interhouse, has just gone live.

It claims to be the only UK facility that lets customers rent space on a monthly basis. It's targeted at small and medium-sized businesses, and is located a stone's throw away from LINX (the London Internet Exchange), which Stanford says will improve the speed and security of e-commerce.

The server hosting industry will be watching his progress with great interest, as success is by no means guaranteed. Co-location hosting is not an easy business to break into – the industry is dominated by a small number of established players, such as PSI Net, Planet Online, UUNET and GX Networks.

"We've decided to go with Interhouse because it lets us call the shots," says Guy Redwood, technical director of Web design company flg21. "It means we can buy bandwidth from anywhere and we're not tied to one ISP. If we fall out with our ISP, we can move."

Others in the industry have been less complimentary. "I don't see what he's trying to say that hasn't been said before," was the reaction from a representative of a major hosting company unwilling to be named. "There's nothing special about being in docklands - it's just a bugger when you want to check your servers."



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So will Interhouse prove as successful as Demon? We'll have to wait and see. Will Stanford be laughing all the way to the bank whatever happens? Very probably.

Why did you set up Redbus?
We chose the name Redbus because it says what we're about. It's British, it's solid and it shows we invest in British innovation. I started the company because I like making money and wanted to put something back into British business.

What was your thinking behind it?
When I was working at Demon, I saw a lot of good business opportunities go past because I had neither the time or the money to invest in them. Having sold Demon to Scottish Telecom, I'm in a position where I don't need to work any more. But I still enjoy making money. So I put aside £15 million to back promising businesses. All the money I make from Redbus, I'll put back into the company.

Who are Redbus competing against?
One of the reasons I started Redbus was there were so few companies doing what we're trying to do. The large venture capitalists only back an existing concept with a proven track record, and their investments start at around £3 million. Redbus aims to help entrepreneurs with unique ideas to build productive and profitable companies. They might only need £20,000, or £200,000. Redbus can help.

Did your experience of launching Demon have any bearing on you wanting to help entrepreneurs?
I was fortunate. When I launched Demon, the software company I was working for was already successful and running itself. This gave me the privilege of being able to draw a salary, so I didn't have to starve, and it gave me time to get a business plan together.

You say you were lucky, how does that differ from most people?
Many people have good ideas, but can't leave their job. The lack of time is a major problem and the banks often don't want to know.

Have you been impressed with the quality of ideas you've received so far?
We had 12,000 ideas sent to us in the first few weeks after we launched. There was quite a lot of rubbish in there. I like ideas that make you wonder why they haven't been done before. We were also sent lot of ideas that we didn't want to invest in for several reasons. For instance, if it wasn't the right brand or if it wasn't British. We've got 20 projects at the moment, ranging from sponsoring a chess championship to setting up a film distribution company.

Did you get a lot of people wanting money to set up ISPs?
There were a few people, but I made it clear I didn't want to be in the ISP business any more. I was also barred from starting my own ISP – Scottish Telecom didn't want to buy Demon and let me compete against it. And why would I want to set up an ISP when Dixons has done such a great job?

Tell us about Redbus Interhouse.
The biggest issue at the moment in the Internet industry is bandwidth, and Interhouse lets businesses store their data as close to the heart of the Internet as possible. We've located in London Docklands because that is where LINX [London Internet Exchange] is.

How did the idea come about?
The idea came from Kevin Neal who worked at Demon. This was the type of facility we were looking for – we just didn't know it. It also fitted with the aims of Redbus – it hadn't been done before.

So what makes Interhouse unique?
We looked at the market and realised that most companies hosted sites with their ISP or within their own IT departments. If they wanted to change their ISP they had to start building their site again with a new host. Doing this is never smooth and you can never get a neat changeover. Many major telcos and ISPs are already located in Docklands and we've made switching from one ISP or telco to another quick and simple. If a Web design company has several clients, for instance, and its ISP loses its service, it can switch within a matter of minutes – that's invaluable.

But companies can host at Telehouse and that's completely independent?
That's true. Hosting a site at Telehouse is good because it's independent of the ISPs. But it ties customers into long contracts – it needs customers to take a lot of space, and that space normally doesn't come cheap. It's no good for the small Web design company.

Who will your customers be?
We mainly sell to ISPs and telcos who'll sell our services to their customers. Interhouse will let them offer a better range of services. For example, if they need short-term facilities for a Web-based marketing campaign which lasts a few months, they can just put in an extra server for that time period.

What do you hope to achieve with this?
Nobody in Europe is doing what Interhouse is doing. We're not attached to any ISP and we're not going to become one – been there, done that. It's about changing the shape of the Internet. Anyone who needs a Web presence has to address the issues of a dedicated server with resilience, security and effective management. We remove the hassle for all parties concerned, and it's the next phase in the provision of practical, cost-effective Internet connectivity.

How are you selling this?
We've set pricing structures starting at £200 a month. If an ISP or Web design company wanted its own dedicated cage of servers for its customers, that's fine. Interhouse is a business to business service, but we want to bring it to every business, not just the big guys.

Looking back, what was your main achievement with Demon?
It encouraged a lot of people in the industry to change the way they did things – they started working in the way we did. We were the first ISP to team up with LINX, of which I was one of the founding council members. We were also one of the first to get what I'd call the 'real Internet' to people's homes and on the desktop. Before that, we had people logging on to some remote

machine and only accessing content that companies let them. We changed the shape of the Internet with Demon and we'll do it again with Interhouse.

You've followed a similar pricing structure as you did with Demon. Why?
Demon customers were always on monthly contracts and we had the lowest churn rate in the industry. Customers were always free to walk away, but they didn't because we provided a good service. We're encouraging ISPs and telcos to be more flexible. At the moment, the quality of service is dominated by contracts. Customers who've been told they can leave often find clauses in their contracts that mean they have to keep paying for six months.

What implications do you think Interhouse will have on e-commerce?
E-commerce needs bandwidth and it doesn't have it at the moment. When I buy a book at Amazon, I don't need hold-ups. The delays between my computer and my ISP are bad enough. The last thing I need is hold-ups between my ISP and my connection to the site via LINX. So Interhouse is based near LINX, which will cut down on delays, and the browser will experience quicker download times. Our flexible pricing structures will let e-commerce sites concentrate on collecting the money from customers and sending out goods.

And just how important will e-commerce be in the future?
Make no mistake, e-commerce is going to take over – it's tomorrow's supermarkets. Everyone used to buy food at corner shops. Then high street supermarkets came alone. Then the out of town supermarket arrived and people without cars got left behind. In the next few years, if you want to go shopping, you won't need a car – just a modem and an Internet connection. E-commerce is today's buzzword, tomorrow it'll just be part of life.

If you were Tony Blair for a day, what would you do to boost e-commerce?
It's not a Government issue. E-commerce is moving ahead fast, and governments should only get involved when there are problems to be solved. Let the innovators get on with it.

What shouldn't Tony Blair do, then?
The main thing that governments need to accept is they can't tax the Internet – it's too difficult. They've accepted it for years in the US – if you sell from one state to another, the sale isn't taxed. If Government starts taxing Internet sales in the UK, companies will move offshore. Taxing just won't work across borders. The nightmare scenario would be if Tony Blair sees the government is losing tax - with people selling out of the country - and decides to make up for it by taxing sales more heavily within Britain.

He could do something about the cost of local telephone calls, which many people argue are stifling e-commerce?
Oftel has produced the most competitive telco market in the world. It's far more competitive than the US and Europe. Customers are getting their choice of telco, and this competition is livening up BT. Oftel has done a better job than it could have expected, and it's made the market fairer.

Don't you find it offensive that BT can be supplies so many Net-related services?
Give me the finances of BT and see how many markets I'd get into. BT has, on occasions, used its monopoly in unfair ways, but so do many large companies. Oftel has successfully prevented BT from suffocating the market.

Moving away from the Internet, what other projects is Redbus backing?
We've set up Redbus Film Distribution, a big step away from the Internet. As with most of what we do, we could see a gap in the market. Nobody in Britain was distributing British and foreign films. Redbus Film distribution is about giving what the consumer wants. People don't just want to see the films that have been approved by the big US distributors.

You're also sponsoring a bus journey...
That's going to be fun. An international team will drive a red double-decker bus from London, through the US to Tierra de Fuego – the southernmost tip of south America. You can track the journey on our site.

Sounds like a Branson-style stunt...
Richard Branson would do the journey himself and probably sink the bus in the middle of the Atlantic. This red bus will go from one end of the earth to the other. Virgins never go all the way.

You've said you want Redbus to be as well-known as Virgin.
Virgin is a terrific brand and everything that Richard Branson does says fun. I want Redbus to say quality and innovation. I want our message to be that if it's a Redbus company, it'll work.

Curriculum Vitae

- Born 1954
- 1972 Trained as an accountant
- 1979 Started first software house, ImPETus, for the Commodore Pet
- 1985 Formed software company Demon Systems Ltd
- 1992 Established Demon Internet
- 1993 Refused to sell Demon Internet to Peter Dawe for £1 million
- 1998 Demon Internet grows to 180,000 subscribers to become the UK's top ISP
- 1998 Sells Demon to Scottish Telecom for £66 million. Stanford receives £30 million
- 1999 Appears in *The Sunday Times* Rich List in 731st position

You've often been portrayed in the press as having a rags to riches upbringing. How much of that is true?
Fortunately, I've never been in a position where I was forced to wear rags. But on the other hand, I never expected to be as rich as I am now. When I started Demon, we worked hard, I mean really hard, to make the concept work – it was never an overnight success.

"This red bus will go from one end of the earth to the other. Virgins never go all the way."

Have you ever thought about publishing your biography?
Why? Are you offering to write it?

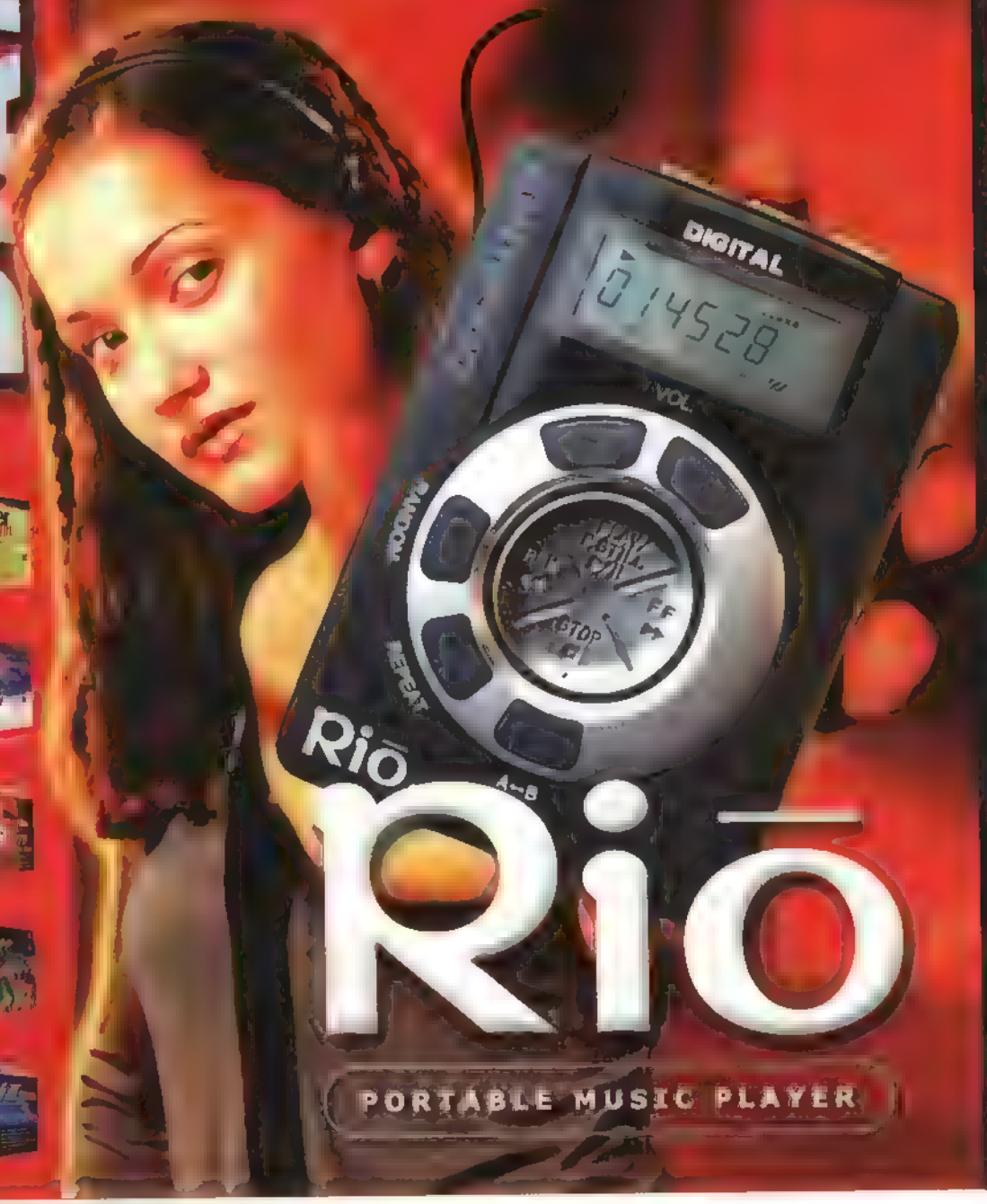
Branson has published two biographies.
If anyone wants to write it, they should talk to me, as long as it's not the person who wrote *Losing My Virginity* – that was appaling. I couldn't possibly write it myself because I can't string two words together. I'm far too busy to think about it and I'm really not done yet – there's lots more I want to achieve.

www.redbus.co.uk

DIAMOND

Internet Music on the Move

- Connect the Rio to your PC printer port (multiway adapter included), then install Rio's software from CD. The software enables you to play MP3 music on your PC and download the music files to your Rio
- [illegible] Rio, or you can [illegible] legally from CDs*
- [illegible] ck of the mouse
- [illegible] and insert headphones
- [illegible] music with 12 hours [illegible] playback from 1 x AA battery included



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The Diamond Rio is the first [illegible] portable music player, which plays your favourite music tracks from digital MP3 files – the most popular music file format found on the Internet. In its simplest terms, it is an open standard for compressed digital music, delivering exceptional sound quality. MP3 files can also be made for personal use from your favourite CDs, using Diamond's MusicMatch JukeBox software.

Why you should buy Rio?

A personal stereo that fits in your shirt pocket and weighs less than your mouse is an innovation in itself. But couple this with no moving parts and no skipping, and you've got the ideal stereo for pounding the streets, whether you're running a marathon or running late for work. With 32MB of on board re-writable memory, you can store up to 60 minutes of digital music, or add a 32MB smart card upgrade to double it. Also included is a preset graphic equaliser with 4 settings, headphones, digital display, random and repeat playback modes.

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RioPort.com

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making your site sticky

Once you've attracted people to your Web site, your next challenge is to keep them there for as long as possible so they see more of your lucrative adverts or learn more about your company. Richard Baguley presents you with 40 top tips to keep people glued to your pages

CONTENT IS KING

Back to basics

01 Start by asking yourself why people come to your site. You might see it as a way to publicise yourself or your company, but people won't stay on your site just because you want them to.

Spot the difference

02 Think about the differences between a site you visit once and a site you come back to every day. The answer is content, irrespective of the subject matter.

Be unique

03 Unique content will make people stay at your site. Don't be tempted to copy someone else's ideas unless you're convinced you can do a much better job.

Learn about your audience

04 You need to find out who's visiting your site and which sections they look at. People are unwilling to divulge information about themselves without a reward. They won't bother with long forms. Remember to tell them what the data will be used for when you're asking for personal information.

Seek and ye shall find

05 Provide a search function – it helps people find what they're looking for and they're more likely to use your site again if they can find what they're looking for easily. The Web differs from an advert in a newspaper or a book – it lets people search for themselves.

Don't just boast

06 Demonstrate your knowledge – every company on the Web claims to be the best at what they do, so you need to stand out. If you're an accountant, you could show people how to create their own bookkeeping systems, or offer a series of FAQs on self-assessment and calculating tax returns.

Let your visitors do stuff

07 Sticky content needs to be action oriented. Give people tools to answer questions, get information and organise their lives.

Photography by Frank Rodgers

Update regularly

08 Go through your site every month and check everything is up to date and accurate. Nothing will deter people more than out of date information.

Picture it

09 You should also change your pictures as often as you can. The images on the main page of the Channel 4 site change daily. "People like to click on pictures," says a senior producer of the Channel 4 site, "so we had to change them as well as the text."

Have I got news for you

10 Create a news page about your business. It's a great way of introducing fresh content and images as regularly as you can.

★ Star Tip

11 "Having news content doesn't just make your site sticky, it makes it educational as well. It can stimulate e-commerce and make browsers more likely to buy online."
Nick Gilbert, site producer, NewsNow

Brand new

12 Think about co-branding your site. NewsNow (www.newsnow.co.uk) supplies the latest news headlines for a range of Web sites, including Key 103 (www.key103fm.com) in Manchester.

Down the local

13 Provide content that's specific to your local area. People conduct around 90 per cent of their business within 10 miles of their home. Cinema schedules and information about local events can be useful and will keep people coming back for more. They're also less likely to be able to get this kind of content elsewhere.

Brain drain

14 Some argue that giving away too much expertise for free is a mistake and the information could be valuable to your competitors. But providing useful content will convince potential clients that you're as good as you say you are.

Happy days

15 If you're a retailer, introduce a 'happy day' each week. Pick a day where you offer discounts – it doesn't have to be too extravagant. People will come back on that particular day each week to check out your bargains.

FREE IS BETTER

Mail it

16 Adding free email accounts to your site is a great way to keep people glued to your pages. To do this yourself, you can use an email server, such as SLMail (at www.slmail.com) or

Really sticky sites

BBC Online

The BBC Online site is one of the most popular content-based sites in the UK. How does it do it? It has a front page that changes frequently and a back end consisting of a huge, searchable, database of programme information.
www.bbc.co.uk

Tripod

Tripod, the free Web hosting company owned by Lycos, has an ever-changing site. Based around communities of interests (known as Pods), it lets you explore member home pages, build your own site, chat and post messages.
www.tripod.co.uk

QXL

The front page of QXL, the online auctioneers, is an exciting place to be. Deals of the Day lists four or five products being auctioned at a given time. Everyone's invited to sign up to the Bargain Alert mailing list, which encourages repeat visits.
www.qxl.com

Capital FM

The site of the popular London radio station, has changed very little over the years. But its sharp blend of music news and stunning design works well. Frequent competitions and celebrity Web chats keep people coming back.
www.capitalfm.co.uk

CNN

A great Web site from the US cable news channel. The front page of the site is updated as news stories break. You can express your views in online chat rooms and post questions to leading politicians. The custom news section lets you only see the headlines related to your particular country or interests.
www.cnn.com

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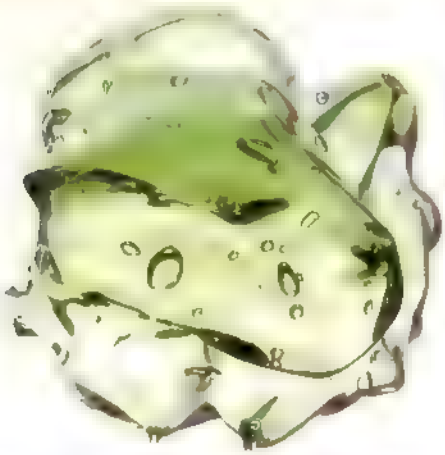


NTMail (at www.ntmail.co.uk). Or you can pay someone else to do the hard work. Companies like Critical Path (at www.cp.net) or Postbox (at www.postbox.co.uk) can manage a mail service for you, so all you have to do is create the pages that link to it.

Make some space

17 You can also give away free Web space. You'll need to check the documentation on your Web server for details of how your visitors can create an account and put their own Web pages into a specific directory. For a good introduction on how to do this, see Lincoln Stein's book *Web Security: A Step-by-Step Reference Guide* (see http://cseng.aw.com/bookdetail.qry?ISBN=0-201-63489-9&ptype=0).

Become an ISP

18 Have you ever considered offering an ISP service to your visitors? 4Free (www.4free.co.uk) offers a VISP service which lets you become an ISP, free of charge. You can set up your own branded home page and offer free Web space, email and content to your visitors. The service is funded by an advertising banner and a small message on your ISP's home page.

Be imaginative

19 You can create your own electronic post office and offer electronic postcards on your site. See http://persona.www.media.mit.edu/Postcards for free software to help you do this. There are no shortage of other things to give away to persuade people to stay on your site.

Providing free email services (such as Yahoo!'s free email accounts) is a great way to bring users to your site, but it can be expensive

Freeware and shareware

20 Free or cheap software is always popular. You could become a mirror of a download site, such as Tucows (at www.tucows.com). For images, check out www.corbis.com to download free photos. Many sites offer music (sites like www.mp3.com have music that you can offer as free downloads). Whatever you use to lure people to your site, make sure you stay within the law.

Fun and games

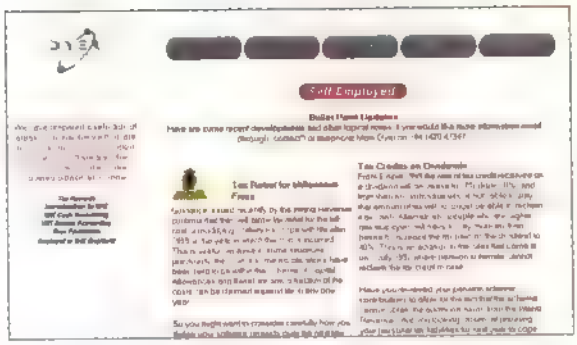
21 Games make for good interactive content. MyVal (at www.MyVal.com) offers unique content to Web sites. The Mirror Group Web site takes a Fantasy Football League-style game from MyVal called Scorecast (at http://scorecast.mgn.co.uk). It lets your visitors play the game on your site. And there's a good reason for them to return – they can win some serious cash.

Show me the money

22 Incentives can be extremely effective. Ipoints (www.ipoints.co.uk) is a UK-only scheme which lets you collect points if you shop at participating sites. You can then cash in those points for a reward. Beenz.com (at www.beenz.com) offers a similar service on a larger scale. Some sites give Beenz away just for visiting their pages, others make you find particular things on the site.

All news is good news

23 If you want to keep your visitors up to date with current events, try offering a Java news feed. 7 AM (http://7am.com/ticker) is a free service which provides your site with the latest news headlines. You simply download the relevant piece of Java from the 7 AM Web site and insert it into your page.



If you want people to stay on your site, you have to give them a reason, such as providing high quality, unusual content – www.netaccountants.com is a good example

STICKY BY DESIGN

The ultimate stickiness

24 Getting people to use your site as their browser's home page is regarded by many as the ultimate in stickiness, so tell them how they can do it. In IE5, go to Tools, then Internet Options. In Netscape, the same function can be found in Edit, then Preferences.

Speed freak

25 Make sure your pages load quickly by keeping pictures, sound and movie clips as small as possible. Most designers agree that Web pages shouldn't exceed 60Kb. This means people should wait less than a minute for your page to appear in their browser.

Open some windows

26 You can make sure your site remains on people's screens

Advertising – the non-sticky stuff?

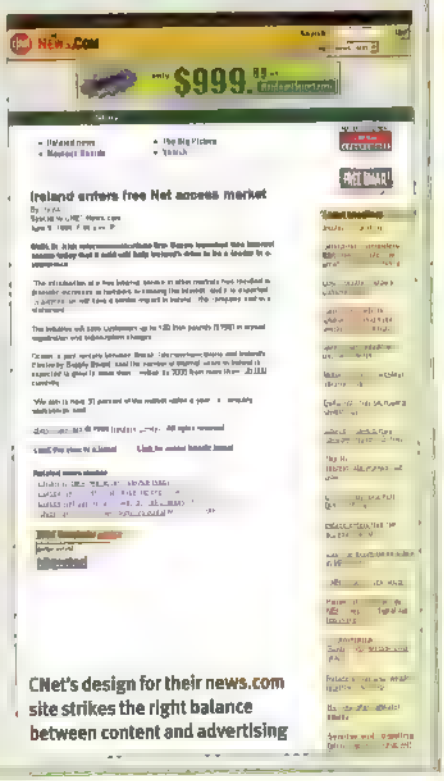
You might be tempted to put as many adverts as possible on your pages. The more ads, the more money, right?

Wrong – this is a short-term view. You might make more money every time someone looks at your page, but lots of adverts can prevent people from revisiting your site. Repeat visits, and people spending a long time looking at your pages, are the ways you'll make money from ads.

The stickier the site, the more ad revenue you'll generate. Most browsers accept adverts, but they won't put up with being bombarded with ads that get in the way of content and take too long to download. This doesn't mean you can't have more than one advert on a page – though you should never have more than one banner ad. It just means you should think carefully about how these adverts get in the way of your content.

CNet's News.com (at www.news.com) is a good example – it has at least five adverts on the opening page, but they don't obscure the main content (the news headlines). CNet's designers have worked the adverts around the page and repeated the same banner ad at the top and bottom of the page.

For a good guide to Web page adverts, see DoubleClick Banner Effectiveness Tips (at www.doubleclick.net/learning_center/research_findings/effectiveness.htm) or the vast amount of information at the Internet Advertising Resource Guide (at www.admedia.org). There's also plenty of links at About.com's guide to the advertising industry (at www.advertising.about.com).



CNet's design for their news.com site strikes the right balance between content and advertising

even when they click on a link that takes them to another site. If you use the frame target of _blank, your links will be opened in a new browser window. To do this, your links should look something like this:

```
<a href="http://www baggers
    com" target="_blank">This is
    a link to Baggers.com</a>
```

Linking up

27 You can also create a link within a window. When your visitor clicks on a link, it'll open a new window that contains two frames. One frame contains a link back to your site and possibly a banner ad. The other frame contains the new page. The code to do this would look something like this:

```
<A HREF=baggerslink.html
    target="_blank">Click here for
    baggers.com</A>
```

So, instead of leaping straight to the new page, it links to a second page on your site (called baggerslink.html) that has the following code:

```
<FRAMESET FRAMEBORDER=0
    FRAMESPACING=0 BORDER=0
    ROWS="100,*">
<FRAME SRC="adbanner.html
    "NAME="AdBannerFrame">
<FRAME
SRC="http://www.thelinkyouwant
    .com"NAME="LinkInFrame" >
</FRAMESET>
```

★ Star Tip

28 "Sticky sites let people find their way around fast. With the Channel 4 site, we reduced the size of the toolbar because people quickly learned exactly where they wanted to go."

Abby Bowen, senior producer at Bomb Productions

THE PERSONAL TOUCH

Take your pick

29 Let your visitors personalise their content. Most modern Web servers let you add features that'll tell people which sections of the site have been updated since their last visit – see www.msdn.microsoft.com/library/techart/msdn_perstutor.htm for an example of how to do this with Microsoft's Site Server.

★ Star Tip

30 "We use creeping personalisation where, as people use the site, they're offered various opportunities to personalise the pages. So when we ask them for their date of birth we can give them a daily horoscope. Creeping personalisation means people don't always realise they're doing it. It also means our visitors don't have to fill in one long form."

Evan Rudowski, director Of European Operations, Excite.

This is your life

31 Turn *your* site into *my* site. Deliver information that matches your visitor's location, interests, age and preferences so they feel in control of the site. Both Yahoo! (www.yahoo.co.uk) and Excite (www.excite.co.uk) are fans of using 'my' on their sites. It's friendly and makes people feel at home.

Track 'em down

32 There are services which can automatically track visitors to your site and create personalised pages based on the pages they've looked at. See GuestTrack (at www.guesttrack.com) or LearnSesame (at www.learnsesame.com).

First among equals

33 Consider putting personalised features on your front page so it's the first thing your visitors see. Excite once had personalised features as a separate link from the front page. "Lots of people just missed it," says Evan Rudowski, Excite's director of European Operations. Earlier this year, Excite put the personalised features on the front page and the number of people who used them grew rapidly. The company now says around half of Excite browsers personalise some aspects of the service.

Don't go over the top

34 If people decide not to personalise, it's important to make sure they still have a pleasant and worthwhile experience at your site. Many people simply won't take the bait and you shouldn't force them too.

BUILDING COMMUNITIES

Chat's the way I like it

35 There are plenty of services that let you create chat rooms, such as Xoom (at www.xoom.com). They're a good way to make your site sticky. There's plenty of software you can use if your Web host lets you run your own programs or CGI scripts on the server, such as FreeChat (from www.sonic.net/~nbs/unix/www/freechat or Multichat (from www.multisoftcorp.com)

Candid Web camera

36 Web cams can be a popular addition to your site. It's not too expensive and it'll keep your voyeuristic visitors coming back regularly. The site of cable TV station Bravo (www.bravo.co.uk) has wired up a house in London that's shared by three young women. Hundreds of people (admittedly most of them lonely blokes) visit the site every day to get a glimpse of the girls and chat to them online.

Enter the forum

37 Forums are a great way to get people talking, because they don't rely on everyone being online at the same time – you can leave a message and read replies at your leisure. There are numerous free services which you can use to add forums to your site, such as Inside The Web (at www.insidetheweb.com/messageboard) or ForumOne (at www.forumone.com). If you want to run your own forum, try using software such as O'Reilly's WebBoard (from www.software.ora.com) or Ultimate Bulletin Board (at www.ultimatebb.com).

Creating a link within your window (Tip 27) is a technique used by the Ask Jeeves search engine. It uses a frames-based page so it can carry its own adverts alongside pages it links to

All change

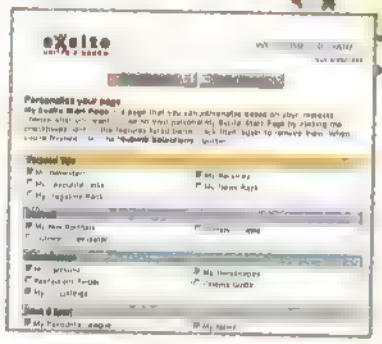
38 Offering Web-based email is a great way to make your site sticky. People will print their email address on their business cards, give it to friends and use it to subscribe to mailing lists. You should aim to make the switching costs expensive.

Sticky situation

39 Some people will abuse your chat rooms or forums for fun, so you'll need to moderate them to filter out any undesirable content. You should also watch out for messages posted by your competitors, as this can make you look rather foolish. We were looking at the ITN election site during the last election campaign and found a message, purportedly from Trevor McDonald, which recommended going to the *Guardian* election site instead.

Keep 'em posted

40 Offer your visitors the opportunity to be updated via email. This strategy has been successfully employed by a number of sites, including Lastminute.com (at www.lastminute.com) and online auctioneers, QXL (at www.qxl.com). These companies email their customers every week to remind them of the site and to promote new products or special offers.



Excite (at www.excite.co.uk) lets you personalise its start page with your favourite content, which makes it a sticky site that you'll use frequently

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Illustration by Steve Wickstead

COULD DO BETTER!

The Government promised to connect all schools to the Internet by 2002. That was two years ago, and despite all the talk about the National Grid for Learning, few schools are using it. [illegible] says the Government should stop chatting and get on with its work

room almost every day, surrounded by children and PCs

Miguel email address

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schools; 450,000 teachers and nine million pupils had barely started.

The official site for the NGfL defines it as: "A mosaic of interconnecting networks and education services based on the Internet".

But Adrian Carey of education ISP EDEX told us: "I'm still struggling to work out what the Grid is." Mark East, general manager of Microsoft's UK Education Unit, says: "It's the connection of all the connected learning communities." In the technology and training branch of the DfEE (Department for Education and Employment), the Grid is defined as "an architecture of content within the Internet," and "a programme for equipping schools"

We asked Charles Clarke, minister for schools, to define the Grid, once and for all. You can read his rambling answer in Yes Minister (below, right).

The year of the Net

In December 1998, UK NetYear, which aimed to get 10,000 schools on to the Internet by the end of '98, was closed. The organisation, backed by ICL, Sun Microsystems, Cisco Systems and *The Daily Telegraph*, said: "UK NetYear has made an invaluable and groundbreaking contribution to education. It has achieved its aims of raising awareness of the opportunities technology can bring, and started the process of delivering the resources needed for the future of our children." The fact that UK NetYear had connected less than half its target number of schools to the Net was kept quiet.

Around 90 per cent of secondary schools and 35 per cent of primary schools are now online. But these figures hide the huge discrepancies across the UK and even between schools in the same county or borough

Out of the schools connected, many have just one PC online. AOL UK has offered free accounts to all schools – primary schools are offered one account and secondary schools two. This act of amazing generosity is worth, as AOL are happy to point out, a massive "£200 a year for each school". But this is surely some sort of sick joke when there are nine million school pupils to get online.

"There's a mismatch in provision between primary schools and secondary schools," explains Russell Ball, headteacher of Barclay Secondary School in Stevenage. The school, which has benefitted from a partnership with cable operator NTL, is relatively wealthy "Many primaries have one computer connected to the Internet and 300 pupils," says Ball. "We have 908 pupils and 110 machines, so we operate on a 1:9 ratio. We're aiming for 1:7 within the next year."

As well as bringing Web access to all schools by 2002, The British Educational Communications and Technology Agency (BECTa) – the government body which is overseeing the NGfL – says at least 50 per cent of pupils and 75 per cent of teachers will have email addresses.

But fewer than 8.8 per cent of teachers in secondary schools and 1.7 per cent in primary schools currently have an email address. The figure for pupils is even lower – only 2.7 per cent of secondary school pupils and 0.2 per cent of primary school pupils. Despite these alarming figures, BECTa says it's still "on track" to reach its targets by 2002.

Regional variations

The Government has invested heavily (around £105 million this year) to get schools connected to the National Grid For Learning, but some schools have yet to see any of this money.

A survey by NAHT (the National Association of Head Teachers) describes a "scandalous" level of variation in the amounts spent on educational technology across Britain. For instance, spending on software and computers in Dudley, West Midlands is over £35,000 a year per school. In Derbyshire, the average is just £3,300 a year.

The NAHT says the variations in spending are a consequence of local education authorities failing to bid for the government money that's available to them. The survey concluded that local authorities that block schools' access to adequate funding are preventing them from modernising and, as a result, are doing the pupils a grave disservice.

Theresa May, shadow secretary of state for education and employment, says she's found similar problems. "NGfL money has provided for some schools, but not all of them by any stretch of the imagination," she says. "I visited one school, asked where all the computers were, and was told that only three schools in the borough had received any money at all."

So what's the solution? "Schools need to be allowed to make proper use of the facilities," says May. "It's clear that individual schools are not having enough input into how funds for the Grid are allocated. Decisions about what's needed have to made at school level, not regional or national level."

Commercial initiatives

Funds don't just come from central government, but from a confusing hotchpotch of other sources, including the National Lottery, public and private partnerships and local business.

Also, as one trade union spokeswoman put it: "We have a situation where the number of computers per school depends on where the mothers do their shopping". She was referring to the voucher schemes run by supermarkets such as Tesco.

In November, BECTa alleged that schools were not applying for all the money owed to them. But many teachers complain that applying to all the individual funding sources is a time-consuming and confusing process.

Ever since Bill Gates was photographed with Tony Blair outside No.10, there's been no shortage of companies eager to participate in the Grid. The Government has actively encouraged commercial organisations to partner with local schools. This has had varying degrees of success.

Yes Minister

We asked Charles Clarke, minister for schools, about the Government's plans for the NGfL

Can you explain what the NGfL is?

There's much more to the NGfL than just connecting schools to the Net. There are a number of elements – the first is a site that links educational resources on the Net. This is run by our agency, BECTa, in Coventry. The second element is the aim of getting all schools connected to the Internet. As we speak, 90 per cent of secondary schools and 35 per cent of primary schools are connected. The third element is to ensure every pupil has an email address. Pupils must be able to email their teachers and communicate with other pupils abroad.

You talk about schools having ISDN access by 2002, but won't it be out of date by then?

There's a wide feeling that it's important to have broadband access. At the moment, some schools have access via ISDN and others access the Net via a modem [dial-up access]. We're putting resources into giving all schools broadband access to the Net. We haven't set a public target for that, and I'm not going to do that now, but we're giving it great priority.

Why did you choose the public and private partnership approach?

It wasn't a question of not having enough money, but, of course,

In many of the poorer areas of the UK, local businesses donate redundant computers to schools. In December, the oil fabrication company BARMAC gave computers worth £150,000 to local schools in the Scottish Highlands. At first glance, it was a nice gesture until teachers realised that many of the PCs were 486s, which were useless for running many of the latest educational CD-ROMs.

"In York, teachers were required to spend 80 hours of their own time to undertake IT training."

In the last year NTL, Oracle, ICL and Microsoft have been involved in large-scale projects to wire up schools.

Hertfordshire County Council said its resources were insufficient to get all its schools connected, so it took a corporate approach. The council did a deal with NTL to become the first shire authority to offer all of its schools and pupils a full Internet service.

The project aims to create a community grid that links schools, libraries, relevant council departments and, ultimately, homes via the Internet. Each grid member will have access to a central control server by normal telephone line, ISDN, ISDN 2 or a 2Mb line. NTL has also worked with anti-porn software company I-Gear to ensure the central server will filter email and Web content.

Dinni Jain, UK deputy group MD of NTL, says commercial organisations have to commit for the long term: "When embarking on a project like this, you have to be aware that what we provide in terms of bandwidth is going to quickly become outdated. We won't ditch the schools after a year."

ICL has embarked on a similar project in Manchester to network 217 schools and 67,600 pupils. The aim is to set up public access points so the Grid can be accessed for lifelong learning.

Oracle got a lot of publicity when it promised to bring email addresses and Internet-based learning communities to schools in Glasgow, East London and the Isle of Man. Known as the Millennium Project, it forms part of Larry Ellison's (Oracle's CEO) investment of $10 million in British schools.

These projects are to be welcomed, but commercial organisations only get involved in education if there's something to gain. NTL is promoting its Internet TV service and, in particular, its subscription-based Knowledge Channel, set to launch later this year.

Despite Ellison's claims that he chose the UK to invest in "because it's recognised the importance of technology in schools and is one of the world's leaders," it's clear he and the likes of Bill Gates regard investing in education as a way to win valuable political brownie points.

Theresa May says: "Partnership with industry is important for schools, but when Bill Gates had meetings with Tony Blair, nobody seemed to be sure about what practical measures actually came out of it."

Teaching the teachers

With any new technology, the people using it have to be taught how it works. Many teachers leave teacher training with only 20 hours of IT tuition. Most of this will have focused on teaching IT as a subject in its own right (not on using it as a broader teaching tool).

The teachers union NASUWT says its members are increasingly required to undertake IT training in their own time and with their own money. Many teachers aren't given the time in the school day to develop knowledge and skills. The union gives the example of schools in York, where teachers were required to spend 80 hours of their own time to undertake IT training. Some teachers are wary of a new technology that pupils often know more about than they do.

Russell Ball, of Barclay School in Stevenage, advocates a softly, softly approach to getting teachers using PCs. "We began by giving PC training to the teachers that requested it. But one by one they all started coming along to the sessions. We didn't force anyone. Now I have 60 members of staff who are all computer literate, and next year the Government is giving me £25,000 to train my teachers in how to use the Grid."

There's also been widespread praise for Gordon Brown's budget allocation of £20 million to buy laptops that teachers can use at home.

The three Rs

Despite the Government's hype about the NGfL, many union leaders and teachers don't see the benefits to education. In a speech to headteachers that was timed to coincide with the launch of the UK NetYear, the Princess Royal described the wired classroom as the "enslavement of children to machines".

Many union leaders say the NGfL mustn't be used to distract attention from rising class sizes and the lack of investment in other equipment.

"Many teachers will be staggered by the amount of money involved," says Nigel de Gruchy of the NASUWT. "They'll wonder why the Government pleaded poverty in refusing to pay them their 1998 pay rise, despite the recruitment crisis. On the issue of the right to balance between expenditure on teacher and IT, the Government has clearly got it wrong. At this rate, we could end up with a shortage of teachers and a surplus of computers."

Headteacher Russell Ball says the Internet has the potential to empower children and raise educational standards.

"For 20 years as a geography teacher I've had to drag children into my classroom, but now I can barely get them to leave," he says. "The children work on the computers at lunch times, break times, and even after school - they enjoy learning while using Internet."

Yes Minister

that's an issue. Over the last six months we've given a much higher priority to partnering with a wide range of public sector companies – including the cable companies, broadcasting companies and software companies. This is because commercial organisations often have the skills to develop the software and facilities needed in the most effective way.

We believe there are two markets – the home and schools. We aim to bring these markets closer together. For instance, we've worked with Dorling Kindersley to make sure the CD-ROMs you buy to help with your child's GCSEs are the same as the ones that are being used in schools.

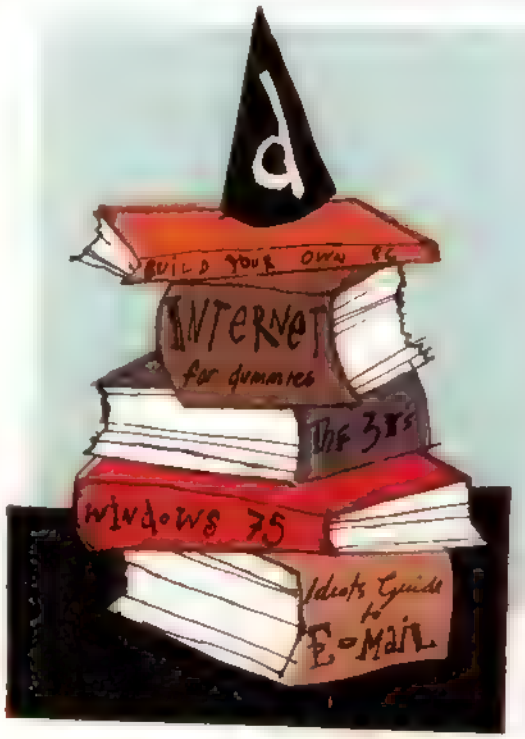
We need to reduce the gulf between parents and schools, and we think developing an effective IT market is a good way to do this.

What do you say to teachers who are concerned about the main focus being on the Internet rather than teaching?

The Net and CD-ROMs can be great assistants in developing literacy and numeracy. But I admit there's work to be done in developing the best use of IT as a teaching tool. The NGfL is about empowering children and raising their educational standards. We don't see any contradiction at all in focusing on literacy and numeracy on one hand and IT on the other.

Will you achieve your goal of wiring up schools by 2002?

Of course.



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Album Of The Week Specials

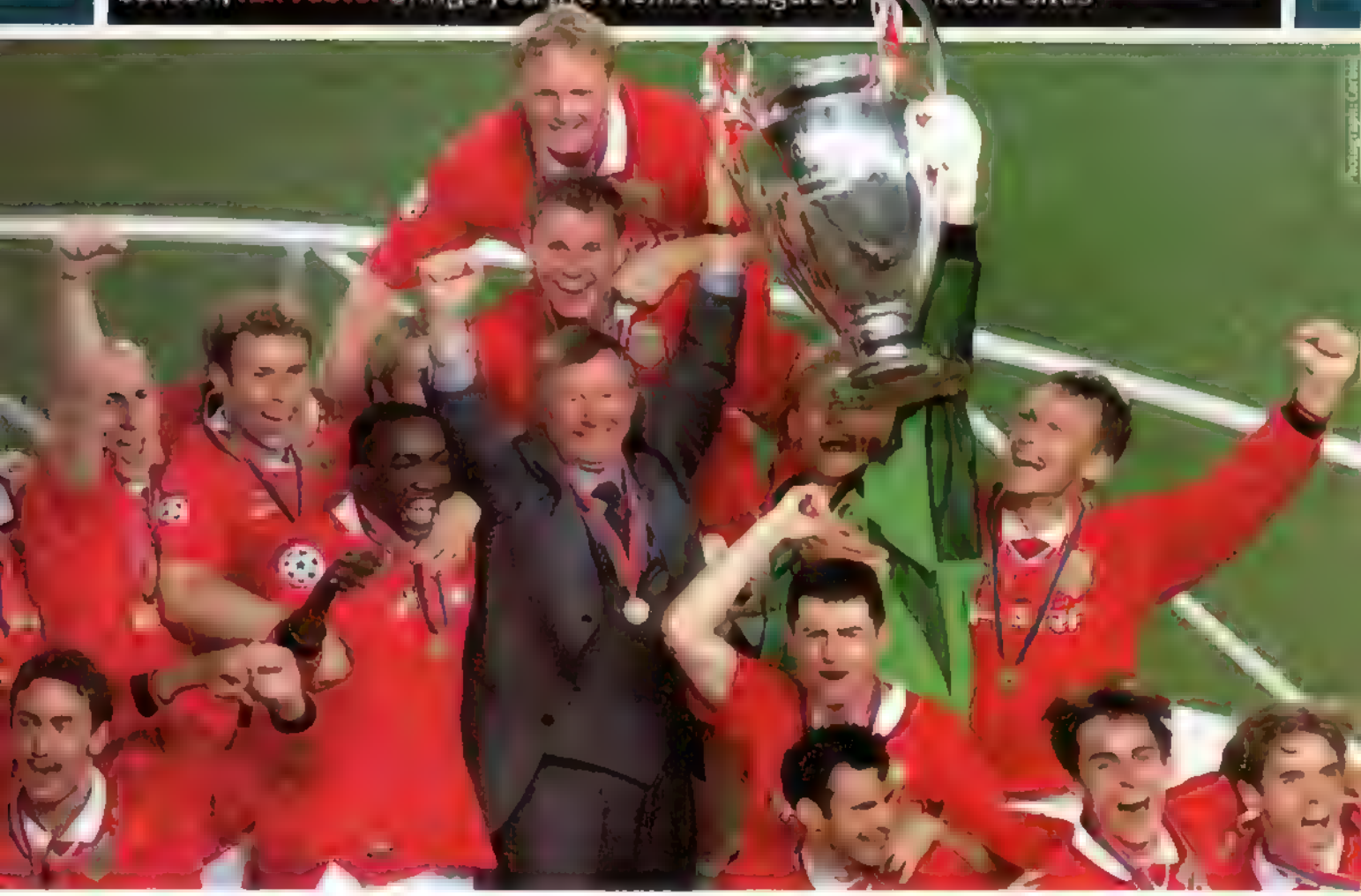
Record Search

Pre-Release Music Discounts

READ IT, SEE IT, HEAR IT

Football

Football is flourishing on the Net. Whether you're an armchair supporter or a full-blown obsessive, there are sites to suit you. To mark the start of the new season, **Ian Foster** brings you the Premier League of footie sites



If there's anything a football fan likes better than the beautiful game itself, it's sharing their fervently-held opinions with others. And what better opportunity to do so than on the Internet?

Since the earliest days of the Web, there have been football sites. And the fans led the charge online. The Ipswich Town site claims to be 'the first football Web site in the world', and there's little reason to doubt it. Started by a bloke called Phil Clarke, it's now the team's official home and the first VRML footie site on the world. Check it out at **www.itfc.co.uk**.

Even the big boys having been going cap-in-hand to their supporters. The mighty Chelsea approached several design companies before commissioning a fan to do the job of running its site. Jack Manthorpe's now doing his dream job at **www.chelseafc.co.uk**.

And now they all want in on the act. Fans expect everything the Net can offer, and more, from their team's site. And now, with BSkyB's attempt to buy Manchester United earlier this year, and NTL's purchase of shares in Newcastle United, there's even the possibility of matches being broadcast live over the Internet.

OFFICIAL SITES

Most Premier League teams have official Web sites. But it's surprising how many smaller clubs are on the too. Whoever you support, you can find your favourite team's site at the E.soccer directory

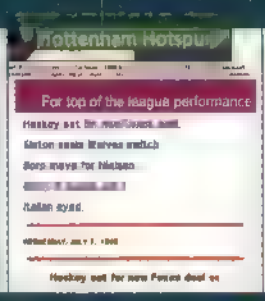
www.e-soccer.com

In the UK, newspapers have long known that they needed an online presence, and that football was a winning form of content. But most newspaper sites repeat what you've read in print, or publish what you'll see in the paper tomorrow. Truly successful football sites have embraced the Net as a new way to break stories and present detailed content.

We now demand more than our weekly dose of *Match of the Day*. We want daily news about our team, transfer gossip, previews and reviews of the big games, sound and video clips, pictures, updates on scores the minute they change, and the chance to buy all the kit. It's here that the Internet comes into its own.

The traditional media is playing catch-up as Web sites win exclusives and tempt visitors with high-quality original content. In terms of all-round skill, the Net has everything – the immediacy, the variety, the statistics and some downright bizarre stuff to boot. If the Net were a player, it'd be on every manager's wish list. Now turn the page for our selection of the very best sites.

TEAMTALK



Teamtalk launched in April 1997 and concentrates on providing comprehensive news coverage. "We already had the infrastructure in place because Teamtalk began as a telephone-based product in 1991," explains Ian Holding, sports director of IMS (publishers of Teamtalk). "We saw the Web as a fantastic opportunity to expand."

Holding believes the site has strengthened the Teamtalk brand, and attributes the success of both products to original and quality content. The site uses a regional network of 60 reporters and agencies covering different teams, as well as 26 people in-house. "We've probably got more UK information on football than anyone else in the world," says Holding. It's a proud boast, but the site got 12 million page impressions (and 2.7 million unique user impressions) in June, so it must be doing a few things right.

www.imsport.co.uk

FOOTBALL 365

Football 365 is an online football newspaper with a personalised daily email service – choose from the detailed newspaper, specific news about your team or the editor's bulletin. But there's far more here than news – you'll find opinionated features, a daily poll and lots of fun, such as the lookalikes section, the Hall of Shame and Mediawatch. An original idea and one of the best sites featured here.

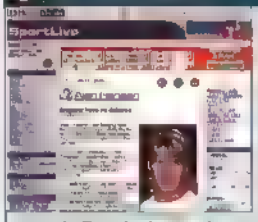
www.football365.co.uk

SOCCERNET

The popular Daily Mail site offers personalised team news, a live scoreboard, a who's who of over 2,000 top players and links to Sportsbook.com, an online betting facility. You can also play Shockwave games in the arcade section, and take part in daily polls and competitions.

www.soccernet.com

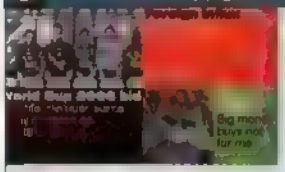
SPORTLIVE



The Daily Express site has news and features, as well as columns by personalities. You can download wallpaper for your favourite team, have your say in the chat forum and plan visits to other grounds. There's also the chance to create a free Web site for your amateur team without having to learn any HTML.

www.sportlive.net

FOOTBALL UNLIMITED



The Guardian's site is almost too comprehensive, making it difficult to navigate. But it has some great features, such as The Fiver – a summary of the day's news and events emailed to you every weekday. It also has club news, a huge statistics database, links to fan sites, and content from *When Saturday Comes*.

www.footballunlimited.co.uk

FINAL WHISTLE

As well as Premier League news, Finalwhistle.com gives you the latest fixtures, results and league tables from Italy, Spain, Germany, Holland and France. You can also get coverage of domestic cups, European competitions – including the Champions League – and international tournaments.

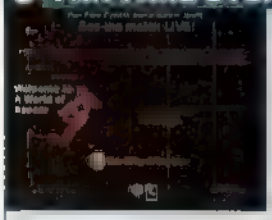
www.finalwhistle.com

SPORTSWEB

If you're after the latest world soccer news (you'll have to accept that football is called soccer outside the UK), Sportsweb has global news and detailed sections on the 2000 European Championship and the World Cup in 2002.

www.sportsweb.com

FAN FARE EVENTS



This site isn't pretty, but if you want to travel abroad to see a game, Fan Fare Events will help you organise a tour package, including accommodation, flights and match tickets. Choose any footie destination in the world – brochures and fixtures details are available from the site.

www.fanfare-events.com

FIFA

FIFA's site is useful for major tournaments – and includes plenty of information about past World Cups. The FIFA Museum (at www.fifamc.com) holds 1,000 years of football artifacts and memorabilia with 3D images, video and sound clips.

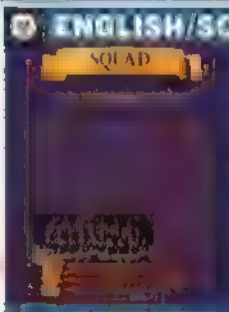
www.fifa.com

UEFA

The news on UEFA's site is more concerned with its own organisation than European football information, which makes it all rather political. But there's a useful set of links to football associations in Europe and a detailed section about UEFA's role in the game.

www.uefa.com

ENGLISH/SCOTTISH FA



The site for the English FA is being revamped at the moment, but you can keep track of England's campaign to host the 2006 World Cup at www.fa2006.org. The Scottish FA has details of the squad, news, results, fixtures, and an online museum.

www.fa-premier.com/www.scottishfa.co.uk

WHEN SATURDAY COMES

This football fanzine's site is not to be missed. There's some excellent content to amuse you between match days – you really need to read Pete's poetry. Football love and lust is full of tales about the winning combination of romance and rattles – have you got a story to tell?

www.dircon.co.uk/wsc

BASTARDS IN BLACK

Spare a thought for football's referees. The amount of criticism they get seems to grow every season – but the men in black are fighting back. Bastards in Black is a fanzine written by refs for refs, but true football fans will appreciate the humour on this site.

www.bastards-in-black.com

WEMBLEY PARK

Wembley Park follows the plight of Glenn Hoddle, England's erstwhile former coach, using Flash animated stories.

Don't leave without playing the hilarious games involving Paul Scholes, David Beckham and Robbie Fowler.

www.hoddle.com

spotlightonfootball

SKY SPORTS

Sky Sports' site makes full use of the company's TV resources. You get up to date news, excellent match coverage and pictures from all the games. There's a fanzine for each club and lots of specific features, including TV schedules for your team's matches. The Soccer Saturday section mirrors the TV programme, with live match updates and the chance to email the show.

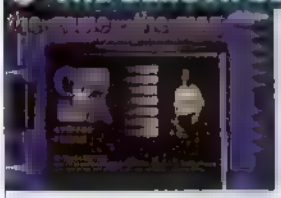
www.skysports.co.uk

FROM THE TERRACE

FTT opens with a stirring rendition of the tune from *Escape to Victory*, and navigation is based on a toilet roll. Choose your favourite team from its position in the league table and you'll get a full list of results and fixtures. You can even create your own non-league Web site – all you need is a computer, an Internet connection and bags of enthusiasm.

www.fromtheterrace.co.uk

THE BEAUTIFUL GAME



The Beautiful Game is packed with images, so loading pages takes far too long, but it's a colourful site aimed at the younger fan. Get a round-up of world soccer, take a look at some of football's greatest blunders and check out football computer games. There are also weekly interviews and profiles of the top players.

www.thebeautifulgame.co.uk

SPORTING LIFE

A joint venture between the Mirror Group and the Press Association, with the latest news plus good coverage of domestic and international competitions. Soccer Live updates the latest scores, and the vidiprinter will prove useful on Saturday afternoons. You can get news about your favourite team and betting information, and the simple navigation makes it easy to visit other sports sections on the site.

www.sporting-life.com

OTHER PAPERS

The Times and the Independent have good articles on football, but the content is a straight repeat of the hard copy. The Electronic Telegraph claims to be a pioneering online newspaper, but it's also batting for promotion into the elite. Its saving grace is the excellent interactive football section, with its an online fantasy football game.

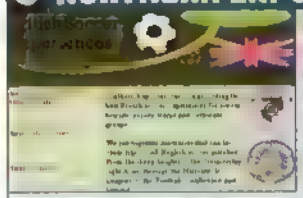
www.the-times.co.uk
www.independent.co.uk
www.telegraph.co.uk

Tabloid sites such as The Mirror and The Daily Star lack sophisticated design and detailed content, but they're easy to navigate, and if you want sensationalist stories and wacky headlines, they're the places to visit.

www.mirror.co.uk
www.megastar.co.uk

Your local rag can be a great place to go for news about your favourite team. There's a complete UK list at www.yahoo.co.uk News and Media Newspapers/By Region/Countries/United Kingdom/England/Complete Listing

NORTHERN EXPOSURE



If you're travelling around the UK to matches, Northern Exposure has itineraries of trips to all English soccer fixtures. The company will also book you a tour of your favourite club – a great experience if you've never done it before.

www.ltne.domen.co.uk

SPORTING BET

You can still make money from football – even if you've hung up your boots. Sportingbet.com is the first online bookmaker in Britain to bring you legal tax-free betting (it's run from Alderney in the Channel Islands). It's a fully interactive betting service, so you can view prices, place your bet and check your winnings online in real time.

www.sportingbet.com

SOCCERBASE

If you need to brush up on your statistics before placing your bets, Soccerbase, claims to be the best and most up to date source of British data on the Internet. If you fancy being the next John Motson, here's your chance to revel in footie statistics.

www.soccerbase.com

PFA

The PFA has a well designed site where you can find out about the organisation's work, as well as its corporate facilities such as celebrity golf matches and the end of season awards dinner. The football postcards, which you can email to a friend, are well worth a look.

www.thepfa.co.uk

CARLING

The official Web site of the Premier League. There's a wealth of information here, including the latest news, results and reviews, plus match previews and club statistics. There's also a discussion forum, where you can chat with other fans, and you can register to join Carling Opta – the service that details every kick of every game.

www.fa-carling.com

NATIONWIDE

The Nationwide home of football is a great site for clubs in Divisions 1 to 3 and the Football Conference – why should the Premier League teams have all the fun? As an England team sponsor, Nationwide also brings you news about the national team from the senior squad to the under-16s. Nationwide is also a partner of the Scottish FA, so you'll also find news, fixtures and results for the Tartan Army.

www.footballnationwide.co.uk

E-SOCCER DIRECTORY

There are hundreds of fantasy football sites on the Web, but there's a big division in their quality. Many are just online versions of the old play-by-mail concept. Be careful. If you're paying to play – make sure you know what you're getting in return, even if the site promises generous cash prizes. So visit here for a good list of fantasy sites.

www.e-soccer.com

FANTASY LEAGUE

You can play the original fantasy league game online in two ways – the professional game lets you set up a private league with friends, while the solo game lets you compete against 10 other managers for the grand prize of £10,000.

www.fantasyleague.co.uk

OTHERS

The Daily Telegraph's successful fantasy league game is now on the Web (www.telegraph.co.uk) while Soccernet's Soccer Challenge (www.soccernet.com, and Sky's Football Fantasia (www.skysports.co.uk) are also popular. Virtual Match Soccer is from *Match* magazine www.matchfacts.com, and will appeal to younger fans or their parents – in an advisory role, naturally.

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Personalise or brand your webspace by adding a unique domain name* for just £100 per year or £10 per month
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Internet access at local call rates
25Mb web space
Global roaming for worldwide access
A comprehensive service for only £12 per month or £100 per year Ex VAT

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High quality round-the-clock customer support seven days a week 365 days a year all for the cost of a local call **FREE.** Use your domain name to brand your web space*

Advertise yourself globally with simple web authoring
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sitesurvey

This month's top sites rated by experts // brief / budget / content / design

Explore International

Plenty of great wildlife pictures and details on more than 800 nature programmes on a site from this documentary distribution company

If you can't resist those cute animal documentaries on the National Geographic Channel, there's good news for you. You can find out a lot more about programmes dealing with lions of the Serengeti or whales of the Antarctic online, thanks to the folks at Explore International.

A documentary distribution company formed as part of a joint venture with French financiers Canal Plus, Explore International has taken to plying its wares online, with a snappily designed site brought to you by multimedia gurus, Virtuality DM (www.virtualitydm.com).

"There are around 800 pages of information on the documentaries distributed by Explore International, and many have digital photographs," reveals site designer Ian Thuillier.

"The main aim of the site is to make broadcasters aware of the huge selection of documentaries available from the likes of National Geographic, Docstar, Natural History, Londozi and Nature Conservation." An impressive list of contributors.

The site's design is no less attention grabbing. The home page is a display of flickering TV screens, with the pictures changing from cute critter to cute critter with alarming regularity. Sadly, you can't use the screens to link to other areas of the site.

Most of the site is attractive and the contents are neatly laid out, like frames, on the left hand side. The level of detail in the various sections varies wildly (no pun intended) between being right on information to the lengthy biography of the company's MD, which seems a bit too detailed. But, as a fairly new site, there's room for these mistakes to be ironed out. With information on over 800 programmes and the promise of a mammoth searchable database coming soon, it's definitely one to keep an eye on.

Caroline Westbrook

Each of the 800 nature programmes gets its own page

www.explore-intl.co.uk
Design ★★★★
Content ★★★

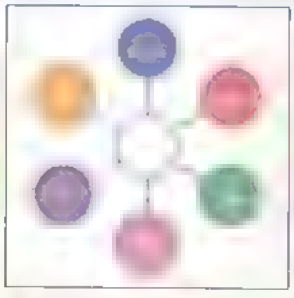
TALK TO THE ANIMALS

National Geographic Television
www.nationalgeographic.com/media/tv
Discovery Channel Online
www.discovery.com/online.html
Animal Planet http://animal.discovery.com/animal.html

HOW DO THEY DO THAT?

The dazzling display of ever-changing television screens on the front page was created using two common Web design tools in harmony. "It's as simple as it looks," explains Ian Thuillier. "A lot of effort went into the timing of each television's screen change." Each picture was created in Paint Shop Pro and placed into Dreamweaver tables. "I liked the TV screens on the home page far more than a Flash animated introduction with music," he says proudly.

SEPARATED AT BIRTH?



Sometimes you just can't help noticing some startling similarities between sites. Is this pure coincidence or is there a conspiracy at work? My Nutrition, the one stop shop for healthy living (on the left) launched this site in 1998. Bij-Voorbeeld, the Dutch design company, created the site on the right in April 1999. One design has a copyright, the other doesn't... You be the judge.
www.mynutrition.co.uk/www.bij-voorbeeld.nl/BIJ-VOORBEELD/game/start.htm

Lucozade

Bright design, clear navigation, great downloads, loads of Flash *and* Lara Croft. What more could you want?

Touted as 'the first Web site that promises to give you energy', Lucozade's site, created by the Wax New Media agency (**www.wax.co.uk**), represents part of a £25 million marketing investment.

With plenty of consumer brands already on the Web, it was important for the site to attract people and make them come back. "The site had to appeal to the target audience," comments Andy Oei, senior product manager at Lucozade. "The central theme of energy is maintained through the site."

The Lucozade Cyber Complex is a virtual city covering its brands. The Lucozade Sport section has sporting tips to improve your performance. Lucozade Low Calorie offers hints on how to put 'oomph' into your life and Lucozade Energy offers instant boosts for those with low self-esteem.

You can shop online, download pictures and screensavers of Lara Croft, and get sounds, desktop trinkets and the latest TV ad. There's also an energy questionnaire and a Shockwave game, The Lost Luco.

The site is image-intensive, but James Ghani, MD of Wax New Media, is quick to defend it: "The site tries to achieve a sensible balance, offering visitors a unique experience whatever their connection." Flash and HTML versions are available.

As Oei concludes: "The site aims to strengthen the Lucozade image, so we're providing visitors with an interactive energy experience within a fun, lively environment."

Steve Edwards

www.lucozade.com
Design ★★★★
Content ★★★★

LET'S GET FIZZICAL
Red Bull www.red-bull.com
Coke www.coca-cola.com
Pepsi www.pepsiworld.com

Download pictures of Lara Croft, star of Lucozade's new campaign

Navigate your way around the Lucozade site by clicking on the Flash-generated city

Family Search

Possibly the world's best online genealogy resource

The Net's a great way to study genealogy, but few sites can hope to match the new Family Search site.

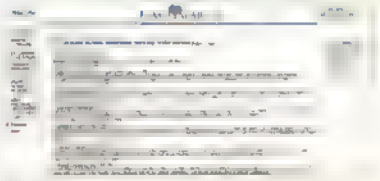
The site is sponsored by The Church of Jesus Christ of Latter-day Saints (**www.lds.org**), whose members are encouraged to trace their ancestors as a religious obligation. It has collected data on nearly 400 million names. It's right there at your fingertips and, best of all, it's free.

According to Bryan Grant, director of public affairs, the initial response has been outstanding. "The site was designed for a live access rate of 25 million a day," he says. "Since then, it's been closer to 100 million hits a day, making it one of the top four or five sites on the Internet."

Part of its popularity must stem from its ease of use. Like a traditional search engine, you type in a name, click on Search and get your results back instantly. You can also collaborate with other genealogy groups via the mailing list, submit your family data, add your genealogy site to its archives, and order censuses and ancestral files online.

The site is founded on decades of dedicated, painstaking research.

HOW DO THEY DO THAT?



The site's searching mechanism is inspired. Rather than scan one huge, unwieldy database, the system looks at a number of smaller, more detailed sources to produce faster and more accurate results. Sources include The International Genealogical Index (covering 60 per cent of all available data), the Ancestral File, the Family History Library Catalogue (the world's largest genealogical library), the Pedigree Resource File, and thousands of Web sites evaluated by Church volunteers.

"Designing a site that can deal with an unprecedented level of demand was a major undertaking," explains Grant.

Steve Edwards

www.familysearch.org
Design ★★★
Content ★★★★★

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REF: INM02

Wotsits

Willie's whopping Web site packed with games is surely the most fun you can have with a cheesy snack

Brands of sweets and snacks come and go with generations (witness the continued pining for the Aztec bar and the recent revival of Golden Nuggets). But one brand that's retained its school lunchbox popularity is Wotsits. And now the cheesiest cheesy puffs aim to consolidate that position with a Web site.

Based around the characters in the Wotsits adverts, the site takes you into the alliterative world of Willie, a small boy who whooshes across the screen on a giant Wotsit. Entering his messy bedroom, you're presented with headings that pop up when you scroll over them, courtesy of Flash 3.

The site's creators, Subnet, took two months to produce and test the site before its launch, and clearly enjoyed every moment of it. "It needed to be entertaining and interactive," says Jon Turner, Subnet's planning director. "We were fortunate to have existing characters that we could use to reflect the Wotsits brand."

Most of the areas involve games that help to promote the brand while not looking like blatant advertising. You can build a Whoosh Machine, which explodes if it's not constructed properly. And for players with longer memories, there's the cheerfully retro Cheez-a-Rods. For the sportier cheese fan, there's the Wotsits Greatest Goal. This is where your host, Willie, gets to recreate great moments from footballing history.

The many 'Forbidden' warnings might make you think you're trying to access Pentagon secrets rather than a Web site about crisps, while the Whoosh Willie button did nothing more than freeze the screen. But despite these shortcomings, the site is loud, colourful, fun and a good office time-waster. The message is 'Buy more Wotsits,' but it has something to appeal to kids of all ages and, unlike the eponymous snack, it's really not that cheesy.

Mark Whitehead

HOW DO THEY DO THAT?

The site encourages kids to explore the Net in the Wot's Online? area. Several links, including Disney and Star Wars, are already suggested, and there's space left for you to bookmark your favourite sites. It was built with JavaScript to make it easier to use. "The links came from discussion between us and Wotsits, but we made further access available dependent on parental supervision," says Jon Turner. "We didn't want to impose blocks ourselves – access to any site should be decided in discussion between parent and child."

The site is packed with games, including Willie's Wonders of the World and the Whoosh Machine

www.wotsits.co.uk
Design ★★★
Content ★★★★

PLAYING WITH YOUR FOOD
Snickers www.snickers.com
Walkers Crisps www.walkers.co.uk
Sunny Delight www.sunnyd.com

Smirnoff

Will you be more shaken than stirred by this site?

Smirnoff, the world's leading vodka and James Bond's favoured tipple, has relaunched its Web site. And Simon Hunt, Smirnoff International's brand manager, has high hopes for its future. "We believe we have one of the best sites on the Web," he says. So does it measure up?

The site starts as it means to go on, with loads of visual appeal

"The primary reason for developing this sight was to provide an interactive brand experience for the Smirnoff consumer and Web user," Hunt explains. The trouble is, this site doesn't provide much in the way of audience participation.

You can create your own cocktail, but don't get too excited. Smirnoff claims to have plenty of variety, but once you've chosen your ingredients from the list, you're unlikely to end up with the novelty drink you hoped for.

Bar Tips includes a conversion chart. If you don't mix cocktails much, the step by step guides are good, but you might find sections like Selecting a Glass a little patronising.

You'll also find an illustrated explanation of the distilling process and a history of Smirnoff. And there's an area dedicated to Smirnoff's involvement in the Bond movies.

A major section is devoted to the Smirnoff International Fashion Awards. Here you'll find photographs and details of how to enter the show. It's aimed at encouraging young designers, but will it appeal to Smirnoff's wider target audience of 18 to 34 year olds?

The site's design is dazzling – the look is futuristic, slick and professional, but it's let down by the navigation. Still, this is only the first stage of the site's development. "We'll be building regional sites, with Planet Smirnoff as a portal, bringing the Web into our global marketing," says Hunt.

The email postcards section shows the company's limited understanding of the Net. The idea is good, but there's nothing original here – and that applies to the rest of the site, too.

Sarah Britton

There are plans for Planet Smirnoff to become a portal

www.smirnoff.com
Design ★★★★
Content ★★

MAKE MINE A DOUBLE
Titos www.titos-vodka.com
Finlandia www.finlandia-vodka.com
Iceberg www.icebergvodka.net

Castrol

Can Castrol cut it as a portal for the great British motorist?

Castrol has attempted to reinvent itself as a motorist's portal. But the lubricant specialist's new Web site could do with a bit of oil to get it moving.

Castrol believes a popular site will raise the company's profile. "The concept of lubricants isn't terribly interesting to many people, but we hope to build up the site's credibility with third party links," says Mark Hodgeson Castrol's UK marketing manager.

But visiting the site can be a problem. Flash is an excellent design tool, but when you're warned on the opening page 'This site makes extensive use of Macromedia Flash,' you know you're in trouble. And, incredibly, the site doesn't work if you're on a Mac.

Castrol brought in Bath-based design agency Idea Works to help with the look of the site, while keeping all technical work and maintenance in-house. The company has done a good job of the minutiae, but these Mac and Flash issues result in a less than perfect design score.

Content-wise, the site is fine. If you want to buy a car, the site can show you all the dealers in your area. You can choose between new and second-hand models, compare prices, sort out your insurance and decide which recovery service you want to use.

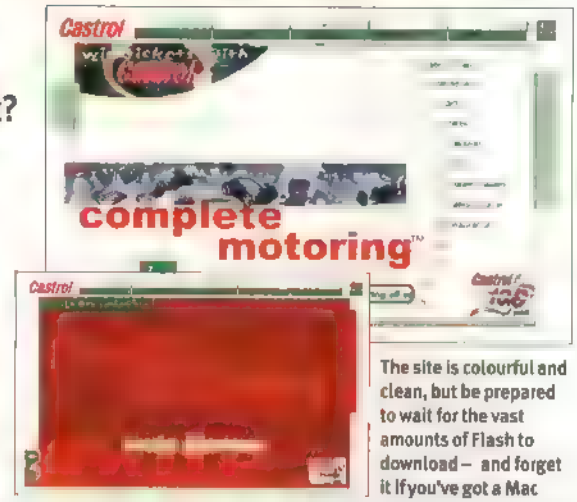
There are also links for fans of every motorsport, from Formula One to motocross. "The intention is for the site to cover all key requirements and to act as a filter for what's good and worth having," Hodgeson says. There's also an online route planner. And if you're indicator's broken *en route*, the site offers tips on how to change the bulb.

But despite the deals Castrol has with third parties, you're left with that nagging thought: "If only Castrol had given its visitors the option of a Flash-free site."

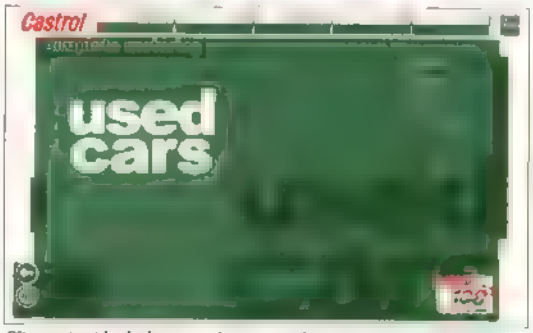
Adrian Murdoch

www.castrol.co.uk
Design ★
Content ★★★★

GET YOUR MOTOR RUNNING
Top Gear
www.topgear.beeb.com
Autotrader
www.autotrader.co.uk
RAC
www.rac.co.uk



The site is colourful and clean, but be prepared to wait for the vast amounts of Flash to download – and forget it if you've got a Mac



Site content includes car price comparisons and a route planner

Vodafone

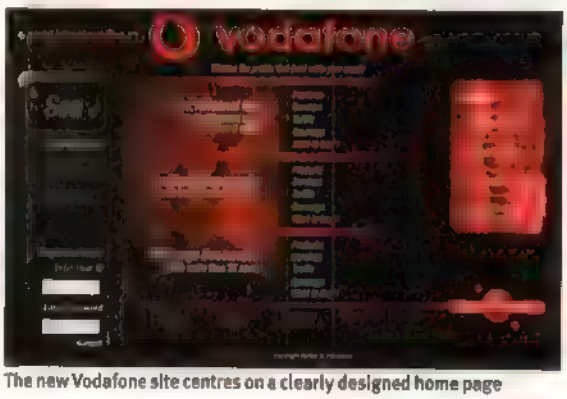
Stylish design and shopping head up a major revamp

One in 15 people in the UK owns a mobile phone. And more are being sold every day, so it's probably safe to assume the Vodafone Web site is popular. To confirm this, it's undergone a radical redesign, combining neat and well presented graphics with the company's familiar logo.

"We developed the tone and feel of the site to integrate with the new Vodafone branding," says creative head Louis Lygo. "We wanted to make users feel instantly in touch with the values and benefits of Vodafone – whether they were new or existing users."

Customer requirements seem to be a priority here. "This was Vodafone's first consumer-focused site, and we wanted to get it right," adds Lygo. "We also wanted to create a seamless experience – even though it pulled together eight different Vodafone businesses – it involved a great deal of discussion."

The site lets you buy a full range of products online, complete with the promise of next day delivery if the order is placed before 4pm. But the content isn't terribly exciting, and a lot of the design, aside from a striking home page, is functional at best.



The new Vodafone site centres on a clearly designed home page

Online purchasing is enticing, and there's a detailed customer service section to answer tricky questions, such as which phones you can use abroad. If you fancy the idea of a career in the mobile phone industry, you can apply for a job online.

It's a practical site that's useful for simple telecommunications queries, but don't expect to be wowed.

Caroline Westbrook

www.vodafone.co.uk
Design ★★★
Content ★★★

HANGING ON THE TELEPHONE
Orange www.orange.co.uk
BT Cellnet www.btcellnet.co.uk
One-2-One www.one2one.co.uk

CLICK HERE

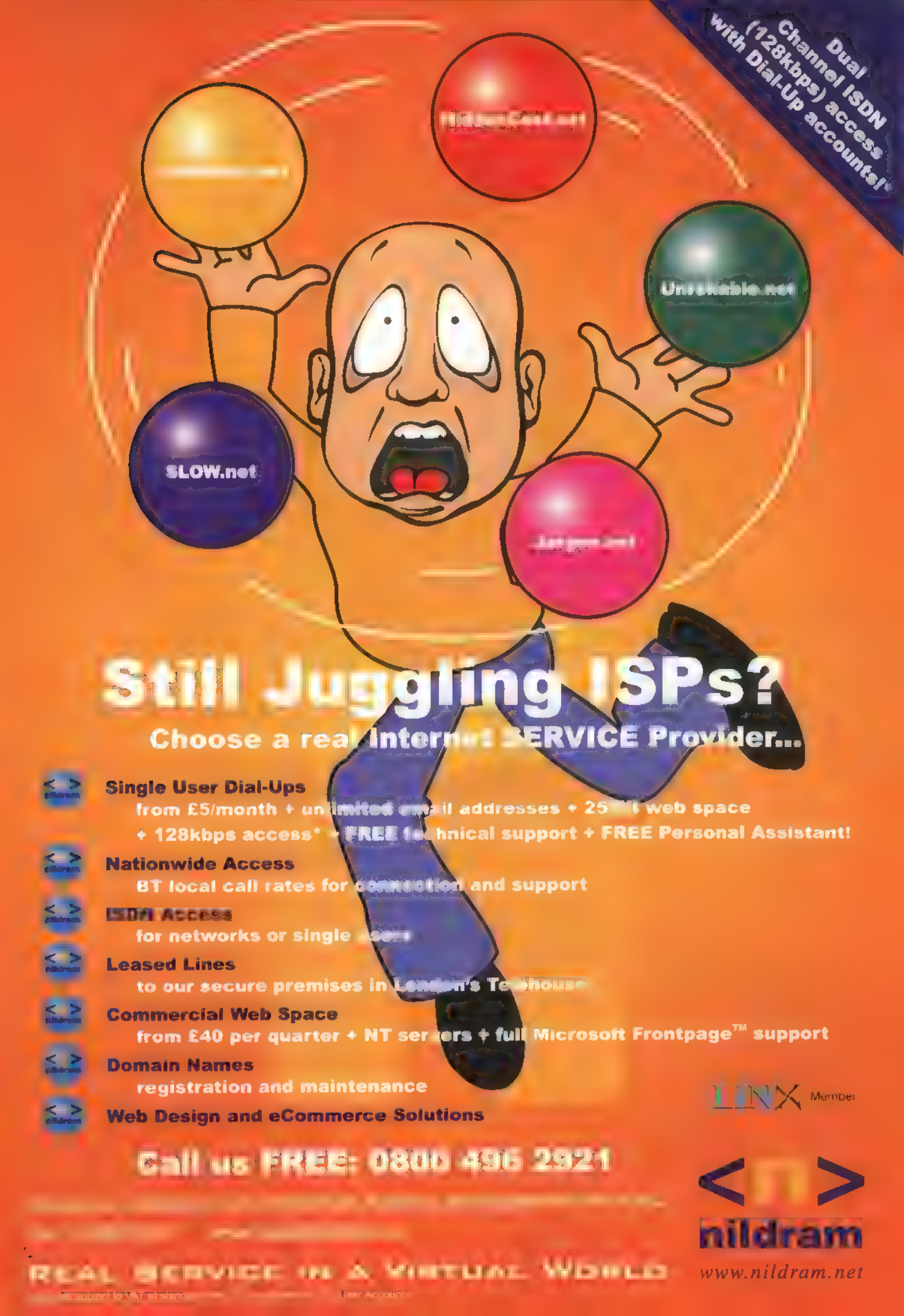
Get your viewing sorted out online

At last, someone's invented the couch potato's ultimate dream. You no longer need to step outside your house because Digiguide has arrived. Yes, you've guessed it, you can now download your TV guide direct from the Web. Get up to the minute news on films and programmes or use the reminder feature to avoid missing your favourite shows. Digiguide has all the benefits of a printed television listings magazine and it's free. A must for telly addicts everywhere.

www.digiguide.co.uk

HOW DO THEY DO THAT?

Getting access to the wonderful world of online buying is welcome, but how does Vodafone manage to keep the registration process simple and maintain security? Hester Bloch says: "The server platform is by Broadvision, which lets the different content owners within Vodafone monitor the needs of users and respond rapidly with relevant content. After the user has registered, they're provided with personalised content that's relevant to the profile they've selected."



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HomeImprovement

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CEWAP

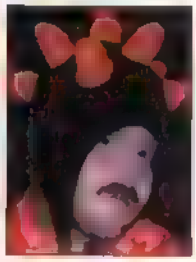
Mark Thomas's biggest fan of brings you comedy campaigning, commuter clubs and tax relief

TEXT COLOUR
The use of coloured or white writing on a black background is not normally encouraged. It makes a site difficult to read and impossible to print. But if you insist on using it, the Tango site (www.tango .co.uk) and the BBC's eclipse site (www.bbc.co.uk) are worth checking out first.

NO FRAMES
The use of frames is increasingly frowned upon. Try to avoid them as Jeff has.

GRAPHICS
Jeff has used small icons instead of memory-hungry pictures. This is a good idea, as it cuts download time.

PICTURES
Use thumbnails to display a large number of pictures. The '18:30 Club' area of Jeff's site has too many photographs and takes ages to download



NAVIGATION
The worst sin any site designer can commit is poor navigation. Jeff's site is not consistent from one page to the next. Heavy use of the Back button is frustrating and stops visitors from exploring a site. They must be able to move back and forth between sections in one click.

Despite its name, Jeff Jenkins' site is home to far more than just The Conditionally Exempt Works of Art Appreciation Party (CEWAP). His home page is divided into seven areas dealing with an eclectic mix of subject matter.

TRADE SECRETS

Margaret Manning Reading Room
www.readingroom.net

The CEWAP area of the site is highlighted at the top of the front page with a banner advert. This isn't the best way of getting people to visit an important section of a site. Most visitors will presume this is just a banner ad for another site and won't read its contents. Moving the same graphic into the body of the text would get you more clickthroughs. Jeff gets top marks for using page titles and META keywords, but should use META descriptions to improve the site's rankings in the search engines.

Most of the site consists of material from Mark Thomas, the comedy investigator, and his Channel 4 show.

CEWAP tells you how to get tax relief on works of art. But you must agree to give the public 'reasonable' access to the art. Cue lots of "can I come into your stately home" routines performed on old people in the early hours.

Jeff, a 41 year old IT analyst, has taken it upon himself to spread the word about Mark Thomas. So as well as the CEWAP section, we also have the Mark Thomas Comedy Product area, which deals with the rest of the show.

The home page has attracted around 500 visitors so far, including what Jeff calls "military visitors", who came to look at material that was sensitive to the US military – something the National Security Administration would rather not see on the Net.

Less contentious content includes information on GM foods and the abolition of nuclear weapons. But just as you're beginning to think he's only a campaigner (albeit a comedy one), you get sections on his pet cats (bless) and the best area on the site – the 18:30 Club.

This features Jeff (Plucker to his mates) and his daily journey on the train from Waterloo to Weymouth. There are pictures of the people he travels with, details of the games they play, and even names for the different splinter groups.

This version of the site took Jeff around a week to create, and he spends three or four hours a week keeping it fresh using Dreamweaver. "I intend to do more," he says, "but don't we all?"

SITE SPEC

CREATED
April 1999

CURRENT SIZE
2.8Mb

DEVELOPMENT TIME
One week

NUMBER OF PAGES
40

MOTIVATION
To learn Web design and put up some information about Mark Thomas that wasn't around elsewhere, particularly to do with the conditionally exempt works of art scam.

WHAT NEXT?
Expanding content, adding a Screaming Lord Sutch tribute section and increasing the amount of CEWAP related information on the site.

www.cewap.freeserve.co.uk
Design ★★★
Content ★★★

JEFF RECOMMENDS

BBC
www.bbc.co.uk
Internet Sleuth
www.isleuth.com
Menwith Hill Tours
www.menwithhill.com

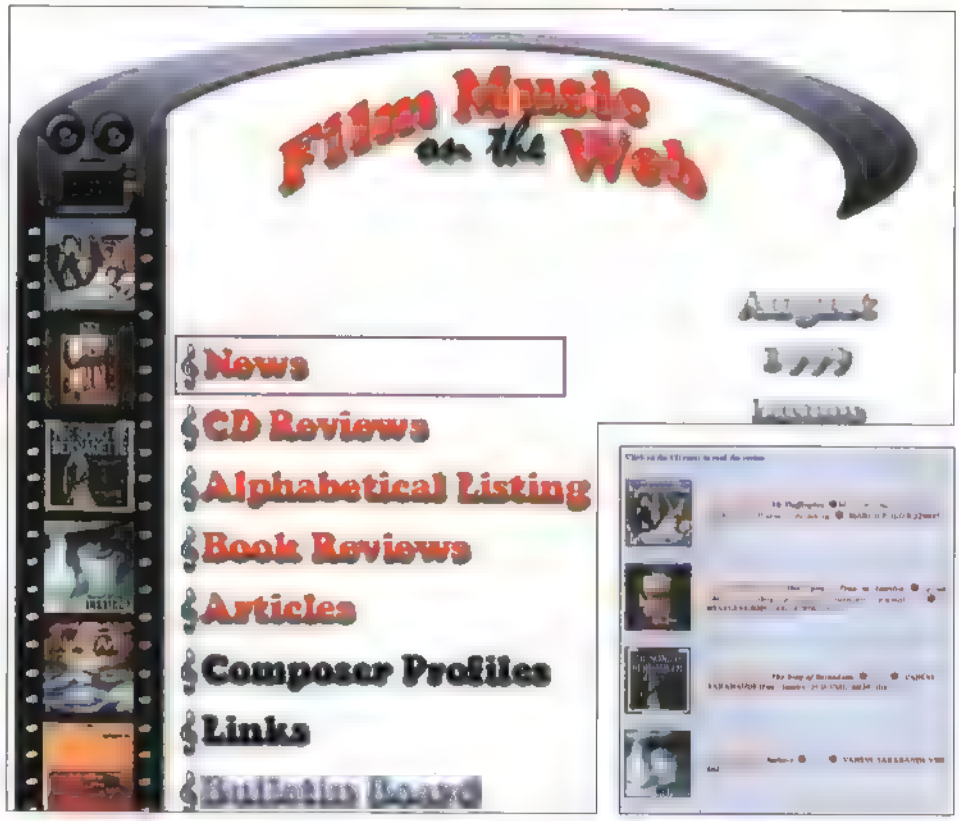
Film Music on the Web (UK)

Reviews of the latest soundtracks, plus film music news and profiles of renowned composers

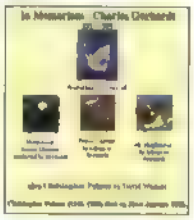
LOGOS
Sites need to establish an identity quickly, and a good logo can help. Len's site does have an image that acts as a logo across a lot of the pages, but it changes throughout the site (see below).

LINKING LOGOS
Visitors always want to click on images, so if a site does have a consistent logo, it should link to the home page or contents menu.

SCROLLING
People don't want to do too much scrolling – particularly on the opening page. Keeping information contained within a browser window will encourage exploration of the rest of the site.



PICTURES THAT LINK
Linked pictures can be an excellent way of sending people straight to the information they're looking for. But visitors can get confused and frustrated if pictures don't don't act as links to other pages or sections.



NAVIGATION
This is so central to good Web design that almost anything else can be forgiven. Len's site has a 'back to menu' link on most pages, but it needs more – people want clear, consistent navigation. Most designers put a site's major links within a navigation bar, place it on one side of the screen and leave it there on every page.

TRADE SECRETS

Richard Dimbleby
Site Reviews Editor
Internet Magazine
richardd@internet-emap.com

When professional designers are creating a site, they monitor the number of clicks it takes a visitor to find what they're looking for. Any would-be site designer can test sites out for themselves. Take the subject matter of a site, such as entertainment, and think of a sub-section, like what's on at your local cinema. Now see how many clicks it takes to find the information. You shouldn't have to follow more than six links. Professional sites shouldn't need more than four links.

The PA News site is designed so you can get to its information quickly

When Dr Len Mullenger isn't lecturing in biology, he's a major music fan. He has two music sites – Film Music on the Web and Classical Music Web (www.come.to/musicweb), which is devoted to CD reviews and profiles of composers. Subject matter apart, the sites are similar.

Film Music on the Web has 11 areas for you to visit. The CD reviews section looks at around 20 different film soundtracks every month. Click on the image of the album and you get a detailed description and a star rating from individual reviewers. The 57 year old webmaster, Dr Mullenger, then awards an editor's choice and an editor's recommendation – a winner and a runner-up.

Watch out for the dreaded one-star award. The reviewers don't hold back if they didn't enjoyed what they listened to. But you probably won't get that far – the graphic of what looks like Dr Mullenger in a mad pose should be enough to put you off.

The news section has a mixed bag of stories. For instance, you're told that, on 10 September, the Birmingham Symphony Hall will be screening the original 1925 silent version of *Ben Hur*, complete with live musical accompaniment from the City of Birmingham Symphony Orchestra.

SITE SPEC

LAUNCHED
January 1998

CURRENT SIZE
32Mb

DEVELOPMENT TIME
It's been a continuous process since January '98.

NUMBER OF PAGES
486

MOTIVATION
The Classical Music Web site had been running successfully for about a year and the idea of a Film Music site complemented it.

WHAT NEXT?
We thought about a domain name, but we couldn't afford it. E-commerce is an obvious feature. I'm looking for a volunteer to help me improve the site – please email me at len@musicweb.forceg.co.uk.

On the other hand, there's a rather spurious review of *Episode I: The Phantom Menace* that doesn't even mention the soundtrack. Thankfully, there's quality content elsewhere on the site, including an interesting interview with John Williams, the composer of the *Star Wars* soundtracks.

Dr Len has to be praised for his site's thorough approach to the subject matter. "The internet is dominating my life and my wife hates it," he says. And you can imagine why, with the time it must take to update the site – complete with book reviews, related articles, composer profiles and online links to third party online CD retailers.

The site also has a bulletin board and a monthly competition to win the CD of your choice. These interactive features have helped to attract 60,000 visitors since launch.

http://surf.to/FilmMusic
Design ★★
Content ★★★★

DR LEN RECOMMENDS
Music & Vision
www.mvdaily.com
NetMechanic
www.netmechanic.com
Crotchet
www.crotchet.co.uk

On the internet in seconds.

Find your book in seconds.

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Go back for seconds.

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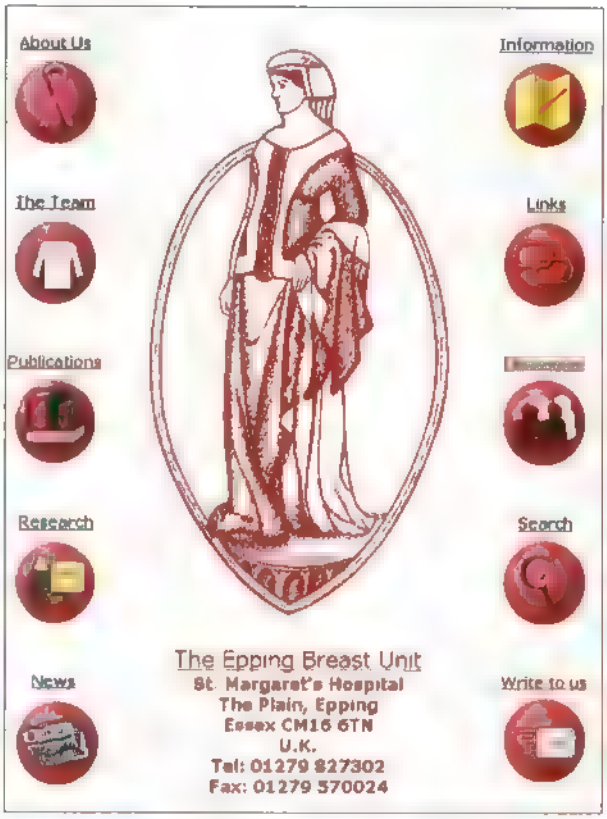
www.amazon.co.uk

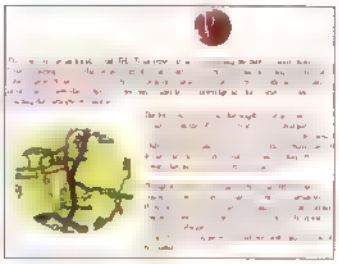
Epping Breast Unit

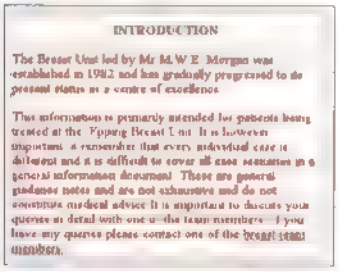
Clear design and quality information for anyone who needs to find out about breast cancer

SCROLLING
The opening page of a site should display all that site's links without the need for scrolling. The Epping Breast Unit only manages six out of 12 without scrolling. Visitors in a hurry might miss what they're looking for

ANIMATED GIFS
Show visitors what the Web is capable of by using simple animations. Animated GIFs are a good method of delivery as they're quick to download. Just don't go mad with them – show restraint, as Ashraf has on this site.







CONSISTENT
Visitors are confused by pages that look different. Keep page layout as similar as possible. This site opens with one navigation design but changes to a second and completely different style throughout the rest of the site.

LINKS
A site should always have its visitors in mind. It's far easier for people navigating their way round a site if links are in a different colour to the main text. If anyone searching for information has to plough through all the links displayed, it's helpful if a link changes colour after it has been used.

FRAMES
These can be useful for differentiating aspects or content of your site, but try not to use them too much. Ashraf's site uses five different frames in some areas. This increases the amount of scroling fivefold.

TRADE SECRETS

Aaron Chatterley
SP New Media
www.spnewmedia.co.uk

Beyond the front page, try using a rollover script in the navigation bar. Most amateur designers spend a lot of time changing the individual buttons for each new page. By using a rollover script, the menu will take slightly longer to load, but your visitors won't have to wait for a new button to load every time they change sections.

Rollover jackpot – instead of creating a new button, try using a design where the link is highlighted on mouseover

Considering the site is put together by a group of busy surgeons, it's a highly professional piece of work. And you won't have to wait long for evidence to prove it. When you type in the URL, the site loads from the centre of your current page. It's a graceful entrance to a graceful site, but it doesn't work on Macs, which is a shame.

The Web site of the Breast Unit at St. Margaret's Hospital, Epping, is managed by 37 year old Ashraf Patel, but he's keen to stress the contribution made by the other surgeons. Vijay Vardhini created the original site and deals with the graphics, while Umesh Khot edits the material on the site.

Ashraf is honest about his relationship with the Web. "I didn't have a clue about the Internet until we decided to put the site up, but it's vital to me for all my information needs now," he says.

This is probably what gives the site such a clean design. It was short-listed for a Yell Award earlier this year in the Best Web Site from a Non-profit Making Organisation category. The main aims of the site are to provide accurate information for patients and to reduce patient anxiety.

There's a comprehensive range of content on the site, including diagnosis and surgery. Patients can find anything from their surgeon's contact number to breast awareness information and details of different operations. There are also sections on the history of St Margaret's and how to get there.

Apart from details about the hospital, the home page gives you the latest news about cancer, which is taken from sources such as the BBC and Yahoo!. It also tells you the latest about the site itself – it's going to appear in *Internet Magazine* apparently.

All this was achieved in matter of months with Front Page '98 and Paint Shop Pro. The team takes about three hours a week to update the site, respond to email and add new sections. So far, almost 6,000 people have visited since July 1998. Not bad for a site that's been designed, created and managed by three surgeons who had no previous knowledge of HTML or the Net.

SITE SPEC

CREATED
July 1998

CURRENT SIZE
1.3Mb

DEVELOPMENT TIME
Five months

NUMBER OF PAGES
36

AUDIENCE
The site was put together for patients being treated for breast cancer.

DOMAIN NAME
The domain name www.eppingbreast.net is already registered and this will be our URL from 1 January 2000. The ultimate aim is to have a breast cancer support group on the Internet, an entire community in the United Kingdom

www.eppingbreast.ndirect.co.uk
Design ★★★★
Content ★★★★

THE SURGEONS RECOMMEND

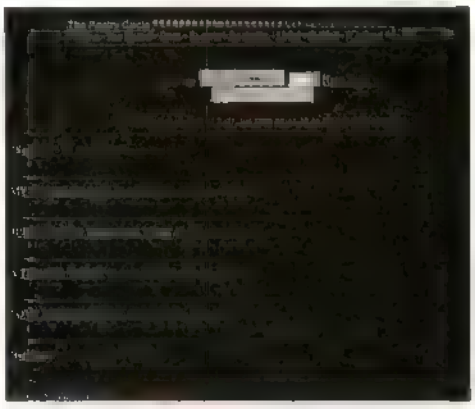
TechnoSphere
www.technosphere.org.uk
BBC
www.bbc.co.uk
W3C
www.w3c.org

The Poetry Circle

Post your poems on this site and see what critics from around the world make of them

FONTS & POINT SIZE
The fonts on this site are too small. One of the primary reasons for visiting a site is to read information. But a lot of Web users can't or won't change the font setting on their browser. If a font is too small to read easily, visitors are unlikely to spend long on your site

COLOURED WRITING ON A BLACK BACKGROUND
This is one of the most common faults of Web design, and not just on amateur sites. The main reason not to use this design style is that it won't print. But it's also hard to read. Joseph should leave this kind of design to the magazines and go for black (or dark coloured) text on a white background.



LOGO
If visitors can't tell the difference between a logo and a banner ad, they'll assume it's an ad. Give logos the same colour background as the rest of the site (or at least the page it's on). On The Poetry Circle site, visitors can click on the banner ad to take them away from the site, but not on the logo to take them to other pages.

LINKS
There's an option in the browser control panels that'll highlight every hyperlink by underlining it. It's impossible to tell how many people are using this option, so only use underlining on links. This makes sure that all visitors see the same thing. Joseph's site scores points for doing just that and for changing the colour of links that have already been visited.

TRADE SECRETS

Margaret Manning
Reading Room
www.readingroom.net

There are some things I cannot forgive – the use of three of the most irritating features on the Web lets Joseph's site down. Visitor counters are the Internet's equivalent of hanging fluffy dice on the rear view mirror of your car – obvious and unsophisticated. Banners slow download speeds and the use of frames makes a site difficult to market to search engines.

Top: fluffy dice of the Net – visitor counters
Bottom: gratuitous use of frames

The opening page of The Poetry Circle doesn't really do the rest of the site justice. The tone is set with the black and red motif that continues throughout, but there's no hard sell. Perhaps it's not in the poetic nature of 17 year old Joseph Tate, the 'recruitment consultant' behind this literary site. Instead, you're presented with a simple navigation bar at the top of the screen that can take you to the seven other areas of the site.

Joseph should be praised for the interactive nature of his site, though. Anyone can post a poem on the site's forum, or The Board, as he calls it. There are around 100 poems there for you to read and offer your considered opinion on. As a result, there seem to be two types of visitor to the site – poets and critics.

If you want immediate feedback on your poetry, there's a Java-based chat room where you can argue the merits of your own verse or other people's work. This should keep people coming back to the site, particularly if they've posted a poem in the forum.

There's one major criticism we have of the site's content – spelling. Most of the poems display basic mistakes that any self-respecting spellchecker would pick up, let alone a human with a grasp of English. A home page with literary aspirations should at least run an eye over its contents before displaying them for the world to see. Spelling is a real bone of contention on the Net, and while it might be acceptable to ignore poor spelling in email, there's no excuse with Web sites. And that includes the fact that Joseph created his site in Notepad.

"The Poetry Circle represents a world of poetry," says Joseph. "People from all parts of the world have come to the site and have posted some poetry or commented on someone else's work."

The site also gives you information about poetry meetings, events and competitions – but all of these occur in New York and New Jersey, where Joseph lives. You shouldn't forget the nature of the Web – it has a worldwide audience. The Poetry Circle's received over 7,000 visitors, though, so he's obviously doing something right.

www.rockpile.com/mud/poetry
Design ★★★
Content ★★★

SITE SPEC

CREATED
September 1998

CURRENT SIZE
2Mb

DEVELOPMENT TIME
Three days – the frames came later

NUMBER OF PAGES
8

MOTIVATION
When I was at the Dodge Poetry Festival in New Jersey, I joined a group of six people standing in a circle reading poetry. We grew weary of the scenery and moved into a large open field. People started joining us one by one. Before I knew it, there were about 200 people sitting in this field waiting for me to tell them who could go next to read their poetry. I put the site together so we could have an ongoing Poetry Circle.

WHAT NEXT?
I'm trying to get some sponsorship so I can expand and promote the site on the Internet.

JOSEPH RECOMMENDS

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www.gssp.url4life.com
Excite
www.excite.com
MyPoints
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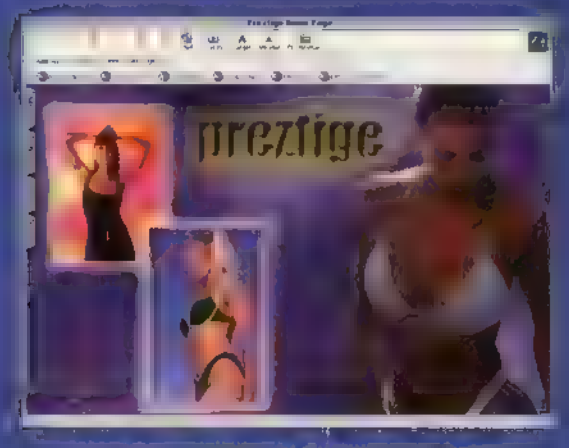

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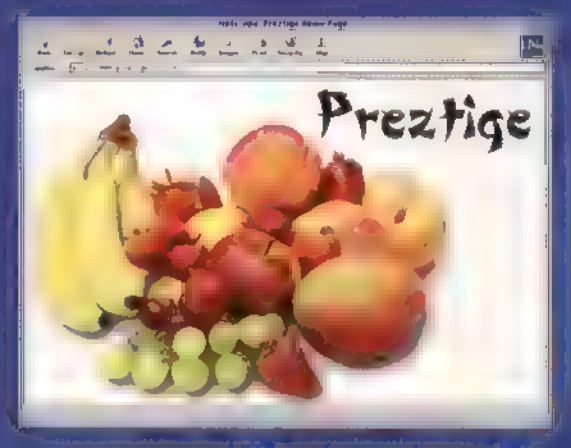

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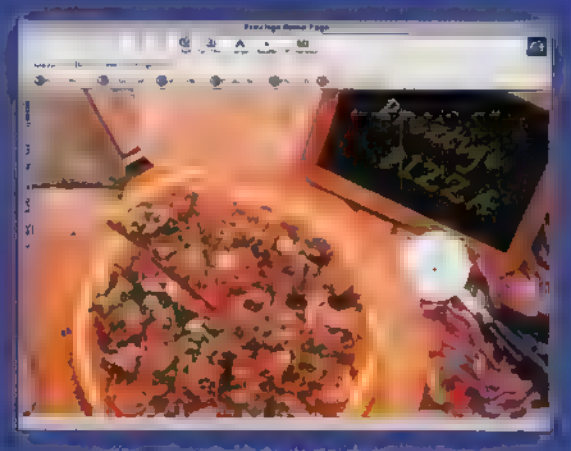

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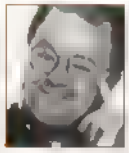
If you've got a Net problem, email it to us and we'll field it to our distinguished panel of experts. From Web design to legal advice, we can answer your questions. We'll also be picking the best reader's tip and question to win prizes each month, so get them rolling in

Readers' questions are answered by our panel of experts. Send your query to faq@internet.emap.com



Richard Baguley is our associate editor. He'll answer your technical questions on everything from relational databases to digital signatures.

Mike Slocombe has designed sites for clients that include Snickers, Direct Connection, NCR and Evolution. He also produces Urban 75, an irreverent online magazine. Mike will answer all your Web design queries.

Roger Gann is a freelance computer journalist. If you're having trouble with dial-up networking or your 56K modem isn't talking to your ISP, he's your man.

Michael Chissick is the head of Internet and IT law at Field Fisher Waterhouse. He'll be ruling on your legal problems.

Susan Costello is development director at Rufus Leonard, a brand and communications consultancy. Rufus Leonard has designed and developed Web sites for Lloyds TSB, Royal Mail, Shell Chemicals and BT. She'll answer your technical Web site queries.

Andrew Starling is our technology editor. He'll deal with site creation and telecoms queries.

We regret that we cannot answer any queries other than those printed in the magazine.

PDF vs HTML

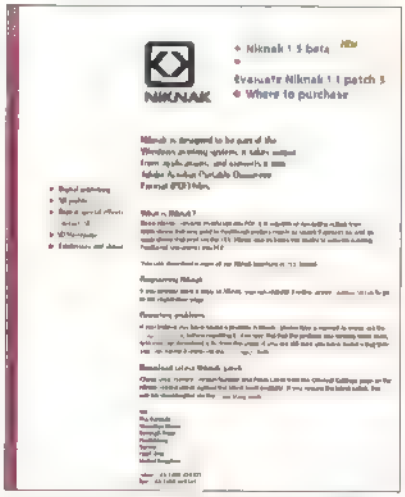
I'd like some expert advice before I plunge headfirst into the abyss. I'm designing some material for educational purposes (undergraduate level) and I was going to offer it as a Web-based deliverable system through HTML. But the material has a lot of graphics, including Illustrator and Freehand files, and JPEGs from scanned 35mm slides.

I don't know which is the best format to use. Adobe Acrobat provides an ideal layout and structure, which most people will be able to see. But it's slow with large images, so I'd have to release it on a CD-ROM. The compression of JPEGs for the Web is impressive, but at some expense to quality, which I don't want to lose.

Also, because of different types of browser, there would be no guarantee of a uniform layout for different visitors. Can you offer any advice or tell me about the pitfalls of using the PDF format or HTML?
Steve Hirons, Birkbeck College
s.hirons@ucl.ac.uk

Mike Slocombe replies: If you're expecting your target audience to print out documents from your Web site, PDFs would be the best solution – they give you precise control over your layout and typography. PDF files are also easy to create and now offer bookmark navigation, searching and forms support.

Many applications can export straight to PDF format, but dedicated software is better. A cheaper alternative to Adobe Acrobat, at £65, is the Niknak PDF Creator (**www.five-d.com**), which we reviewed in June 1999.



If you want to create a PDF, try the Niknak PDF Creator (from www.five-d.com)

The downside of PDFs is that your visitors will have to download the Acrobat plug-in to read them. Document sizes can also get fairly hefty, and reproducing fixed layouts means pages with small type can become impossible to read, unless you use the fiddly zoom feature.

If people are more likely to browse your site online, HTML will provide a faster, more flexible solution, but you'll sacrifice some control over layout and printing.

Your visitors won't need to download any plug-ins, though. You'll also find it easier to update files, and with many automated HTML conversion programs, such as HTML Transit (at **www.nzguide.co.nz/~nzguide**), converting documents is relatively painless.

Many people find it easier to navigate HTML pages than PDF documents. And using style sheet templates you'll find it's easier to establish a generic look for your site. Style sheets also let your visitors override type settings – they can use their own preferences.

For shrinking graphics down to size, try batch compression programs, such as Photoshop 5.5 (at **www.adobe.com**) or the excellent shareware JPEG Optimizer (at **www.xat.com**). Background info on the PDF vs HTML debate can be found at **http://csssrvr.entnem.ufl.edu/~walker/fewww/pdfvhtml.htm** and **http://threads.hotwired.com/cgi-bin/interact/replies_all?msg.30476**

Problems with my Psion

I own a Psion Series 5 and I've bought some Dacom accessories so I can use the Net and fax with my mobile phone.

I'd like to use online banking, as well as other Internet facilities. But whenever I attempt to visit these sites, I receive an error message stating my browser can't open the Web site because it doesn't support frames.

Top reader's tip wins £200 voucher

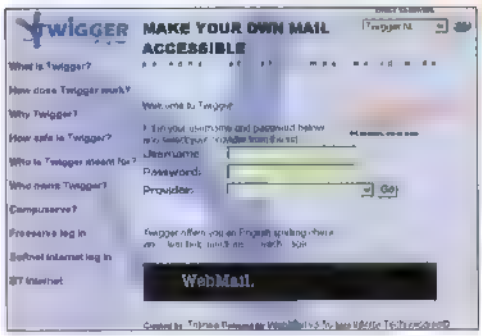
Do you have difficulty accessing your email when you're away from home or work? For the past year I've been collecting my email through a free email account provided by Eudora Web mail (at www.eudoramail.com).

This account lets me retrieve my POP mail from my ISP account, with an option to leave or delete the original messages on the ISP's server for when I return to my PC. Anyone with a PC, Internet access and a browser can use this service.

I've now discovered an even easier option, provided by Twigger (at www.twigger.co.uk), a free Web-based email service. Apart from retrieving my email, Twigger lets me send messages as though I'm using my ISP account. With a simple pull-down menu, Twigger supports over 175 different service providers, including Freeserve and CompuServe. It also responded promptly and helpfully to queries I had that weren't covered in the online FAQs.

Dr Nigel Oliver
oliverbn@mail.easynet.co.uk

Thanks for the tip, Nigel. We're often asked how to access email from somebody else's machine or from abroad. Many of the Web-based email services, such as Yahoo! Mail (at www.yahoo.co.uk) and Hotmail (at www.hotmail.com), offer you access to external POP mail accounts, but Twigger's service sounds even more flexible.



How did we ever survive before Twigger came along?

Len wins himself a £200 shopping spree at top audio-visual online shopping Web site Unbeatable. With over 2,500 products available for your perusal and purchase, it's the place to find everything from a roll of film to a widescreen telly. Backed by mail order specialists, Capital Sound & Vision, all orders are despatched by first class post or next day courier.
www.unbeatable.co.uk

unbeatable.co.uk

Also, is there any anti-virus software that I can use with the Psion Series 5? I don't have access to a PC with a CD-ROM drive, so I'd prefer to download software direct from the Internet. Can you help?
Ms D King
dk@derani.demon.co.uk

Richard Baguley replies: The only Web browser for the Psion (that I'm aware of) is the Message Suite software from Psion itself (www.psion.com). This doesn't support frames, so you can't view sites without have a non-framed version on your Psion Series 5. Your only option is to upgrade to a Series 5mx, which has a built-in browser that supports frames and Java. I'm not aware of any anti-virus software for the Psion Series 5 – but then I don't think any viruses have been written for it.

Filming the great outdoors

Can you give me any pointers for using outdoor Web cam equipment? I want to mount a camera outside our building, rather than pointing it through a window, but I haven't been able to find a suitable camera or outdoor casing.

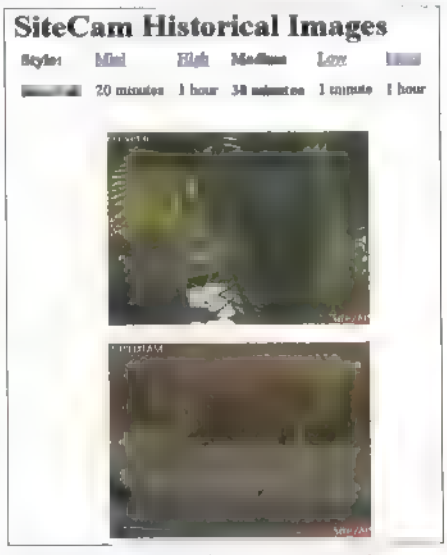
Also, what sort of frame rate can I get with a 56k modem? We have an ISDN line, but a local company has offered us free calls if we can use a standard line. This could be an attractive option.
Matthew Bennett
mat@brit-net.com

Richard Baguley replies: There are plenty of options for an outside Web cam, depending on your budget. If you can afford a sophisticated, high-end solution, check out the SiteZAP package (at www.rearden.com), which includes a camera and software that lets visitors control the camera. The image quality is excellent and you can get a waterproof casing to protect it outdoors.

Don't forget that you can get a normal digital camera (such as the QuickCam Home, which will only cost you around £70) and point it out of the window. It might not be your ideal solution, but it's a good compromise if you're on a budget.

You can also use a normal CCTV camera and a video capture card, such as the Pace TV card (at www.pacecom.co.uk/products/tv.htm) to capture the video, and Web cam software, such as Webcam32 (at www.kolban.com/webcam32).

There are plenty of places where you can get cheap CCTV cameras, such as Bull Electrical. Check out its cameras at www.bullnet.co.uk/shops/test/cctv.htm. Otherwise, talk to your office security company or any decent professional electrical retailer – they'll be able to supply you with a complete kit.



Check out the outdoor Web cams at www.rearden.com

Your frame rate depends on a number of factors, including your modem speed. But this might not be the slowest link in the chain. If the Internet connection between you and your site is slow, this will reduce the speed you can achieve.

I'm not sure why you want to present a live video stream. Systems such as SiteZAP or WebCam32 can do this by turning the PC that creates the video images into a Web server. But it uses a huge amount of bandwidth for relatively little benefit.

Most sites with Web cams use images that update once every couple of minutes, which avoids overloading your connection.

In search of sophistication

I run a Web site that includes a page where visitors can display their own classified adverts. They fill in a form and I manually put each ad into a table, with the most recent at the top.

But I'd like to try something more sophisticated for my visitors. Could you give me some idea about using databases on Web sites. For instance, can I use Microsoft Access 97 files?
Stephen Bates
stephen@bates1.force9.co.uk

Susan Costello replies: Using a database on your Web site requires two things – a database and a script to interface with the database.

Your site's probably running on a Unix box, so you can't use MS Access 97 files. You could ask your ISP which database (if any) is available on its server – but it'll probably be too advanced and your provider will charge you to use it.

I'd suggest using a script to interface with a text file, which contains the information you want to put in the table, such as name, item for sale and email address. You can separate the fields with commas, and the records with carriage returns – the resulting text file is called a .CSV file.

You can use the CGI script to add new records to the .CSV file (from your submit advert form) and to sort and display the records by field type, according to the user's chosen criteria.

For information about getting CGI scripts to do what you want, try www.perlscripts.com or www.cgi-resources.com. But check with your service provider first.

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You can download sound scripts from the Web (see www.javascripts.com). But a more reliable method of adding sounds to your site is to use Flash or a Java applet

No sound of music

I'm trying to add sounds to the Web sites I've designed on my Mac using Dreamweaver 1.2. I've used SoundEffects 0.9.2 to create some .AIFF files and I've added them to my pages using behaviours such as onload of a picture and mouseover.

But when I preview them in my browsers (IE 4.5 and Netscape 4.5), I either hear nothing or a message appears that says I'm missing a plug-in (which it won't specify). These browsers have RealPlayer G2 and QuickTime in their respective plug-in folders, and I can play the sounds when I launch SoundEffects or Realplayer (separate control bar only), so they must be working. I found the following code at http://pratt.edu/~cg520/web_sounds/audio.html:

```
<embed src="audio/sound.aiff"
    width=10 height=10
    hidden=true autostart=
    true loop=2>
```

Why don't my sounds work?
Robert Wisdom
r.wisdom@cdm-uk.com

Susan Costello replies: You can get examples of how to add sounds using JavaScript commands such as onload and mouseover (see www.javascripts.com), but these aren't always reliable. If you want to call sounds on mouseover events, you'll get the best results using Flash (from www.macromedia.com) or a Java applet.

But there are other ways to get sounds to play without the use of these technologies.

You can add background sounds to pages using the EMBED (Netscape) and BGSOUND (Explorer) tags – you're better off using JavaScript to detect the type of browser and write the appropriate tag. Use BGSOUND in the NOSCRIPT tag to avoid an error message on browsers that don't support EMBED):

```
<SCRIPT LANGUAGE=
    "JavaScript">
<!--
if (navigator.appName ==
    "Microsoft Internet
    Explorer")
document.writeln ('<BGSOUND
    SRC="sound.aiff">');
else if (navigator.appName ==
    "Netscape")
document.writeln ('<EMBED
    SRC="sound.aiff"
AUTOSTART=TRUE
WIDTH=100
HEIGHT=40><P>');
// -->
</SCRIPT>
<NOSCRIPT>
<BGSOUND SRC="sound.aiff">
</NOSCRIPT>
```

Don't set the HIDDEN attribute to TRUE in the EMBED tag, because Netscape won't play the sound.

You can also use the ANCHOR tag to play a sound when people click an area of text or an image.

```
<A HREF="sound.wav"
    TARGET="small">Play my
    sound</a>
```

If you don't want people to move to another page when they click your text or image, target a small (invisible) frame on the same page.

Upgrade ruined my Web access

I've subscribed to Pipex for the last two years. For the last year I've owned a US Robotics 56k Message modem, which I upgraded to the V.90 standard. But I can't access the Web at anything like the rate I get with my 28Kbps PCMCIA fax/modem card.

I've spent several hours with the helpdesks of Pipex and US Robotics. I've downloaded and installed drivers, installed Dial-Up Networking 1.3, tried numerous alternative telephone access numbers and dial-up initialisation strings. But nothing's worked.

What else can I do? I've also tried to sign up to the BTClick service, but I couldn't access the site to complete the installation.
George Smith
G.Smith@brma.co.uk

Roger Gann replies: Without a lot more information, it's hard to pinpoint why Web pages are taking so long to open in your browser, George.

From the details you supplied with your letter, it seems your modem and dial-up networking are fine – you get respectable connect speeds and you're able to send faxes and use online banking. So I think we can eliminate your phone line from the list of suspects.

You don't mention email, but assume this is working. Can you, for instance, send emails with large attachments? Do these take an eternity to send? What about FTP – can you download files at a reasonable speed?

The problem lies with your browser or with Pipex, but given the latter's consistent performance in our ISP tests, I'd be surprised if it was to blame for your problems.

I'd check your Internet settings in Windows (I assume that's what you're using). Have you got any stray proxy server settings in use, for instance?

I'd pursue the idea of trying a freebie ISP, such as BT ClickFree or Freeserve – signing up to multiple ISPs doesn't hurt and will ensure you have an up to date copy of Internet Explorer.

It might also be worth installing another browser, such as Navigator or Opera. If this makes no difference, you can eliminate your browser from the list.

Top question wins a pager and Mini-Mail service

Is my search engine legal?

I'm thinking of starting a sports search engine for popular sports, such as soccer, American Football and basketball. I want to use Linux and a version of the HTDig search engine software (at www.htdig.org). My question is the legal position in digging other sites like Sportsline or Soccernet. Is it legal for me to store pages for people to search on, including a title and a page description, even though they haven't submitted their URL for the htdig spider to dig their site? The site will be similar to Yahoo! and AltaVista.
Kai Chan
kaichan@dircon.co.uk

Michael Chissick replies: The copying and storing of someone else's Web page will infringe the author's copyright, unless you have express or implied permission to make such copies. If you store Web pages for people to search through, the owner of the work could make a valid complaint.

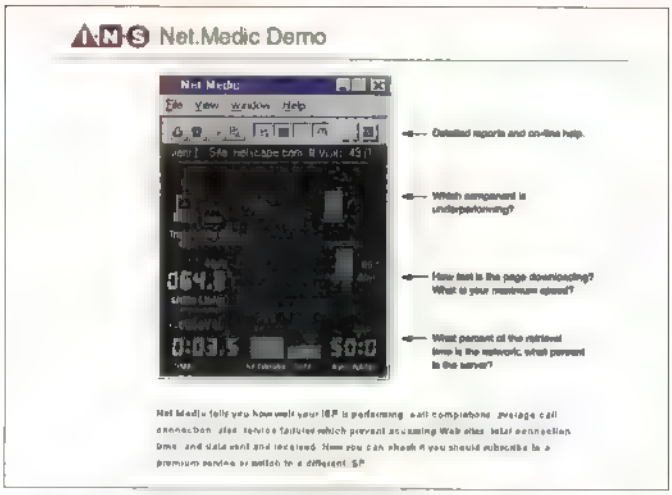
You can use a spider like HTdig to search other sites, but don't store their pages.

The inclusion of the title and the page description could also infringe the owner's copyright, depending on the extent of the copying of the title and the page description. This also depends on the amount and significance of the content copied.

If all you want do is to set up a search engine in the same way as Yahoo! and AltaVista – without storing the pages, but simply creating hypertext links and summaries – there should be no problem. There would be an implied licence permitting you to copy the title and description of each page, and letting you create a hypertext link.

Try removing your dial-up networking in its entirety prior to installing your free ISP, just to make sure you're starting with a clean slate. If you get the same poor performance with a range of ISPs, you know the problem lies at your end.

A useful diagnostic tool is INS Net.Medic, which tells you about the condition of your connection. The program's specifically designed to diagnose internet bottlenecks – you can download a basic version of Net.Medic for free from **www.ins.com/software/medic/index.asp**. The full version costs a reasonable £35.



Net.Medic can help you diagnose your connection speed problems – check out the online demonstration of the software at www.ins.com/software/medic/index.asp

Wizard has lost its magic

I want to run a free ISP (using free4all at www.free4all.co.uk) alongside AOL, as it has better Web hosting, but my version of IE4 came with AOL and its 'add new connection' wizard won't work.

I've tried AOL's interactive help, but it can't assure me that if I load IE5 onto the computer, it'll throw out AOL. It denies the 'add new connection' feature has been turned off deliberately, but it won't give me any advice.

I don't want to get rid of AOL in case it brings out an 0800 number, but I don't want to wreck my computer either. Also, I want to install Netscape Navigator – would this cause a problem?

Peter Bowyer
Reywob@aol.com

Roger Gann replies: On the Free4All Web site, click on the Tech Support button and you'll find instructions on how to manually add a new dial-up networking connection – this is just as easy to follow as the non-functioning wizard. And you won't wreck your computer in doing so.

I checked with Microsoft TechNet and there are no conflicts regarding AOL and Internet Explorer 5 – for all recent versions of Internet Explorer, the only caveat is to avoid using proxy server settings, so you can use Internet Explorer 5. The next AOL software, version 5, will incorporate IE5.

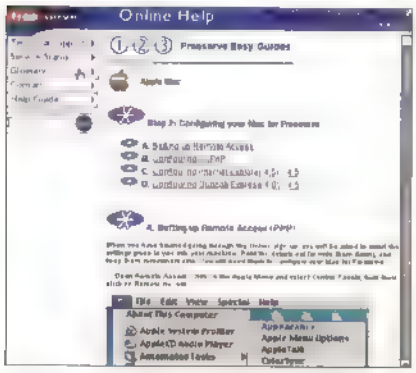
Finally, Navigator and Explorer can peacefully co-exist on the same hard disk.

Looking for free Mac support

I have an Apple 840 AV (circa 1994) and I'm looking for a free ISP which supports pre-Power Mac machines. BTClickFree won't work and Freeserve doesn't support Macs yet.

Al Knight
Aljoknight@aol.com

Roger Gann replies: Most free ISPs only support Windows. This is just a commercial decision, reflecting the 10 per cent market share of Macs compared to PCs. If you have the right software, you can manually connect to a free ISP. There are two main recommendations.



Freeserve's step by step guides are worth a look (at www.freeserve.net/support/test/default_nn.htm)

First, make sure your Mac has plenty of RAM. One of my machines is a Performa 5200 with 40Mb of RAM, and launching a browser can be a slow, tedious task. Second, install the most up to date version of Mac OS - use version 8.x if you can. And make sure TCP/IP and PPP (and a modem) are installed and working properly.

Before signing up on your Mac – either from a CD-ROM or online, I'd perform the task on a PC first. Make a note of the various settings, such as phone number, user name, login name and email server details.

You can then use these details on your Mac. It also helps to use the same software as the ISP installs on a PC – usually Internet Explorer. Have a look at your ISP's online support and FAQs. Freeserve, for instance, gives you step-by-step instructions on how to set up your Mac (see below left).

Once you've entered these details, you'll be able to dial up and connect to your free account in the normal way. Just don't expect too much in the way of support from the telephone hotline.

Search engines are ignoring me

I've had a lot of problems with search engines recognising my Web sites. I follow all the rules by creating META tags with site description and keywords. I use keywords in the following text, I don't use words more than seven times in the keyword area and I only use frames for succeeding pages.

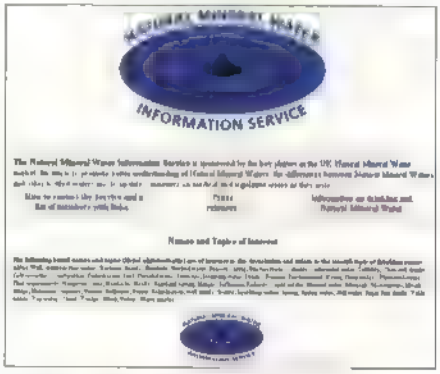
I've registered the sites with a number of search engines, such as Yahoo! and WebCrawler, but they just ignore anything I send them. Two Web sites that concern me are www.naturalmineralwater.org and www.strategypublications.co.uk. The latter includes a number of subsidiary pages (offering reports for sale). Each page has its own keywords and I've spent a long time registering them all, but these are also ignored. What am I doing wrong?

Peter J Harris
mail@harris-associates.co.uk

Andrew Starling replies: You're some way from following the rules, Peter. Both your sites show long lists of words within the regular text of the page. On the Natural Mineral Water page, there are 87 words in the list. Here's a tiny sample: "Soft drinks... Source... Sparkling waters... Spring .. Spring water.. "

Your sites are being rejected by the search engines because they think you're cheating. They think you're adding these lists to fool them into giving you a higher ranking in search results.

This is called search engine spamming and you could gain some advantage from it a few years ago, but the search engines can recognise it now and they'll refuse to list you. As you've discovered, they won't take your subsidiary pages either.



Don't include lists of words on the opening pages of your site – search engines will simply ignore you

Remove the word lists, start your pages with some interesting facts that casually include your main keywords, and try again. It might take a few attempts, but the engines should forgive your past sins and list you.

Web design with dummies

I've turned my love of the Internet into a bit of an earner by designing Web sites for small businesses on a freelance basis. I'm currently using FrontPage and HTML for Web authoring, and Paint Shop Pro and other graphics packages for design.

I'm starting a family and I want to continue to design Web pages. Can you give me some advice

The truth at last about changing ISP. It's hassle-free! Call us on 0800 056 2435

We have used several host ng compan es over the years but none have approached the h gh standards set by NSL *Dr P H Johnson The Dedicated Partnership*

NSL are technically very competent, have hosted our server for over 3 years, and always provide 1st class professional service - *Gill Campbell,Marketing Director - Cortex*

Fastest servers in Scotland, fastest response to solving problems and technically the best guys I've come across. *David Blockley MD - The Internet Farm*

Outgrown your ISP and didn't realise?

Do you have an e-commerce solution that links your website into your Bank? Is your site as fast to browse as it should be? Do you have streaming video? Are you getting proper reports on your website visitors? Do you have an account manager who understands your business? If the answer to any of these questions is no, you should think about making the move to NSL NET.

NSL IS THE ISP THE EXPERTS CHOOSE

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6. Award winning company achiev ng both nationa and internat onal recognit on
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10. Huge range of products
11. Advanced network links your site d rectly to London Manchester, Amsterdam, Paris, Washington DC S licon Valley and New York
12. Web admin interface allowing you to control your account through simple web forms
13. Advanced ana ysis of the visitors to your website
14. We don t offer leased lines or dia -up so all our capac ty is dedicated to our websites
15. For your peace mind we have a network of closed circuit cameras around our fac lity and security guards on duty throughout the night
16. Corporate member of Internet Society and follow the r code of conduct
17. Specia partnership programme for web designers includ ng sales referrals
18. Bulk and reseller discounts available
19. No penalties if you choose to leave us
20. D saster recovery plan n place
21. Fu l access to Perl for your own CGI scripts
22. Range of free CG scripts
23. All planned maintenance done between 6am and 8am to m n m se disrupt on
24. A loca choice with offices n Ed nburgh and London, and representation in Middle East

For Corporate Customers

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NSL NET Key Products and Prices

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■ Domain Name Registration

Register your domain name now. Includes unl mited mail and web forwarding and a l NIC fees. **£65 p.a.**

■ Real Media Service

Add 5 streams of audio or video to your site for only **£600 per year.** One stream is requ red for each simultaneous viewer - buy more streams as you need them

■ Generator

NSL NET is a Macromedia Authorised host ng provider. Generate your flash animations with l ve data from webforms or databases. We'll also help you with the server coding. **From £720 p.a.**

■ Mail List Management

A low your customers to automatically add and remove themselves from your ma l lists, either through web forms or mai ng special addresses. Advanced security and management features. **From £199 per year.**

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For customers requ ring extra serv ce a variety of Corporate Packages are available. Corporate customers have their own account manager guaranteed levels of service, huge traffic limits suitable for major sites and advanced reporting on visitors to your site **From £2,500 p.a.**

E-Commerce with NSL NET

NSL NET offers two different e-commerce packages NSL Shop and NSL C ear which al ow you to setup shop on the Internet and process payments automatica y These systems are currently power ng many successfu nternet bus nesses

NSL Shop prov des you with a database driven cata ogue system capable of coping w th shops selling one or two tems to thousands A set of easy to use webforms a lows unskilled staff to change pr ce or prod uct deta s without needing to know HTML or use an FTP programme

A shopp ng basket system s nc uded This can hand e comp ex de very opt ons w th different prices accord ng to weight of products where they are be ng sent to and by what speed of del very There s also a secure server for tak ng cred t card deta s Transactions are recorded n a database ready for import into any ma or spreadsheet or database Orders can be sent to you in a PGP encrypted ema or passed to NSL Clear NSL Shop s £549 per year and nc udes a Smal Bus ness Package

NSL Clear is an automated cred t and debi t card c earing system This a ows you to automatica y process card orders from your site and receive the money d rectly nto you bank account

Cost s just 10p per transact on w th a m n mum monthly fee of £25 Your Bank w l a so add the r charges Deta ls of participating Banks ava lable from us Sub ect to status

Faxback now on 0131 477 8223 or tel: 0800 056 2435

Please rush me more information about these NSL services

YOUR NAME
T TLE (Mr Mrs/Ms/Dr) POSITION
ORGANISATION
ADDRESS

TEL FAX
EMAIL

- ❑ Sma Bus ness Package
- ❑ E-commerce Package
- ❑ Rea Med a Service
- ❑ Colocated Server
- ❑ Generator
- ❑ Mai ist Management
- ❑ Corporate Package
- ❑ Please call me to discuss my programming requirements (my current ISP is)

IM999

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about the best things to learn so I can increase my knowledge and find employment when my child's a little older.

Looking at job vacancies for Web designers, it seems learning Java, ASP, Flash and Shockwave would be advantageous.

I have the time and the resources to purchase and learn whatever would be appropriate. What's the most useful software to learn in order to increase my employment chances as a Web designer?

Katie Barrett
k.barrett@ukonline.co.uk

Andrew Starling replies: It's nice to have a question with a personal angle among all this technical stuff, Katie. The question you have to ask yourself is how much you want to concentrate on Web design.

If you learn Java or any other serious programming language, you'll be able to earn huge amounts of money. But you'll be working as a programmer, not as a designer. ASP would take you in a similar direction. If you want to stay with design, the best programs you can learn are Photoshop and Flash, in that order.

There are plenty of new HTML 4 tags to learn, since all good designers need to understand raw code. HTML 4 might not figure on too many sites, but it will soon.

Unfortunately, the Internet changes so fast that any advice we give you will probably be out of date by the time you're ready to come back to the job market.

We look forward to receiving exactly the same question from you in a year's time, when we'll be able to give you a more specific answer. Keep in touch.

Expert Helpline

Unfortunately, we don't have the space to answer all your queries, and sometimes you want a faster answer. Why not try our recommended helpline service? It comes at a premium price, but we think it's worth it.

Calls are charged at £1.50 a minute and you shouldn't be on the phone for more than five minutes. There's even a no quibble, money back guarantee in case you're not satisfied. Just let us know, and we'll make sure you get a refund.

The helpline deals with dial-up and browser queries, but it can't answer questions about corporate network connections.

09064 664460
8am-11pm, seven days a week

Legal brief: e-commerce legislation

A draft version of the EU Directive on electronic commerce has been released. Michael Chissick looks at the proposal and its implications for the Internet

The global nature of e-commerce means international legislation is required to regulate it effectively. The aim of the European Commission's directive is to establish a framework of e-commerce laws for all member states in the European Union. It'll become law if it's used as a statute by the UK and other EU member states.

The publication of the draft directive appears to signal a green light for European businesses involved in e-commerce activities. ISPs will benefit from a relaxation of their obligation to monitor content they transmit or store. Consumers will benefit from an increase in choice, as the proposed legislation will promote a more competitive climate for European online services.

The proposals simplify and clarify the legal position for e-commerce businesses. Under the directive, companies offering e-commerce services would only have to comply with the laws of their own national state. The country of origin is clearly defined as the place of establishment, avoiding any confusion relating to the location of servers, Web sites and mailboxes.

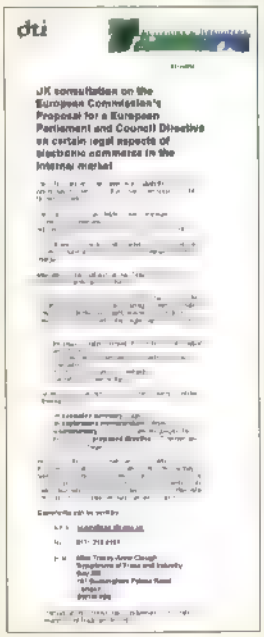
All member states will be required to adhere to the laws of other member states according to the country of origin. The alternative, a universal set of laws for all member states, could prove problematic and would risk damaging the e-commerce industry, as each member state has different regulations governing marketing, advertising, promotions and sponsorship.

ISPs should greet the new proposals with a sigh of relief. Under the directive, ISPs would be granted exemption from liability when they're innocent hosts or transmitters of information, in respect of any illegal, including defamatory, material.

The directive also requires member states to remove any prohibitions or restrictions on the use of electronic media in entering into contracts. This would create a more open e-commerce marketplace which should also benefit consumers. Online purchasers would be able to take advantage of favourable prices and deals offered on the Internet by businesses in overseas countries where variances in national e-commerce restrictions place them in an advantageous position.

But as promising as the directive appears, it'll face major obstacles from established legislation. Exemptions from the 'origin of control' are built into the Treaty of Rome, while the Brussels Convention says that in any dispute affecting a party in a member state, the courts of the defendant will hear any complaint. There are many other laws – relating to data protection, taxation and intellectual property rights, for instance – which might not be harmonious within the EU and which will still affect the lives of e-commerce buyers and sellers.

How the proposed directive will stand alongside these more established laws, should it become EU law, remains to be seen. An unofficial copy of the directive can be found at www.dti.gov.uk/cii/ecomdirective.



The DTI site is a good place to investigate the proposals of the new directive

Michael Chissick is head of the IT and On-Line Law Group at City law firm Field Fisher Waterhouse. He can be contacted at mpc@ffwlaw.com

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Chat with your customers

Chatting over the Internet has been a popular pastime on the Net for a while, but companies are now realising its potential and getting in on the act. Steve Patient shows you how to host a chatroom and create better online communication with your customers

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page 83

Conversing online in real time using text has mostly been regarded as a toy for teenagers, rather than a tool for the world of business. But e-commerce on the Net is changing this perception. Now that your customers can order products and services from your company Web site, they'll also want to be able to contact you.

If a potential or existing customer has a query or complaint and they have to pick up the phone, send a fax or write you a letter to let you know about it, your site has failed you.

A failure to provide customers with an instant opportunity to voice their views can have serious consequences. At worst, they might turn to a competitor's Web site that offers what you're missing. At the very least, they'll have wasted time finding your site, disconnecting and making another call.

Listening harder

A few companies are using Net phone services on their Web sites, but dial-up technology can't really cope with this solution. With the delays it causes, it's impractical to hold a detailed or technical conversation without a high quality connection. It also means that your customer has to be set up for voice telephony via their computer.

Much worse, Net phone calls mean integrating your PBX (Private Branch eXchange) with your Web server and LAN (Local Area Network). Despite all the talk of convergence between voice and data, this'll cost you a lot of money.

Instant messenger programs, such as ICQ, are much cheaper. This low bandwidth technology offers high reliability, an automatic record of customer conversations in machine-readable form, and the familiarity of typing messages on your keyboard, requiring no extra training or hardware.

From the customer's point of view, it's just a button on your Web site which says 'click here to talk to a customer adviser'. But behind the scenes, you'll find it makes it easier to implement large orders.

Types of text chat

Traditionally, IRC required people to get hold of an IRC client, such as Pirch, mIRC or MS Chat. This makes things awkward, since most new people won't have an IRC client, and when they're ready to complain, it's not the time to send them off in search of a download.

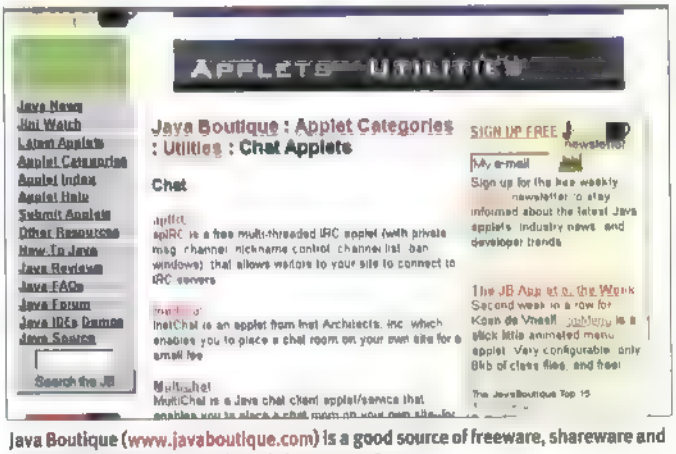
Chat via instant messengers has become popular – the latest version of ICQ has an on the fly chat room, but it doesn't satisfy the needs of e-commerce. For most people, the Internet consists of a browser and an email client.

Fortunately, it's relatively simple to implement an IRC client – or an IRC-style service – using a Java applet in a Web page.

With a browser-based chat room, you can seamlessly integrate a text chat support system into your visitor's Web experience. You can also give it the same branded look as the rest of your site.

Some chat servers go a lot further than showing scrolling text. They support background images and 3D representations of visitors, complete with graphical avatars, graphics in comments and other features that you can use for your own commercial purposes.

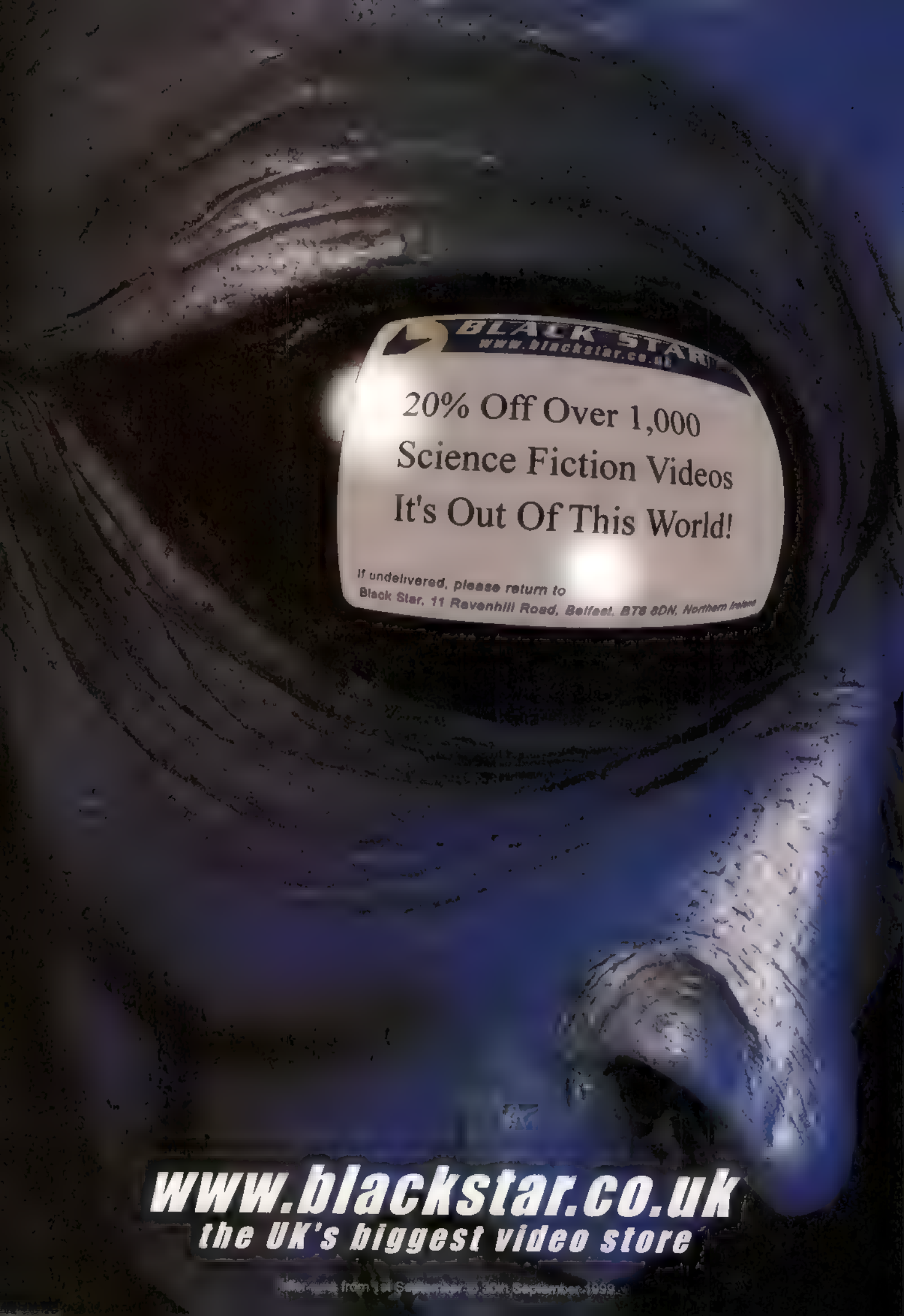
At the JARS site (www.jars.com) you'll find more than a dozen Java-based chatroom solutions to choose from



Java Boutique (www.javaboutique.com) is a good source of freeware, shareware and evaluation versions of Java-based chatroom software

If you choose a Java applet as a text chat client, it's easy to add features to the relevant page. These might include promoting special offers and premium services, letting customers compare experiences, or bringing another person into the discussion.

It could also include extra services, such as a whiteboard, file transfer and the ability to take control of a customer's computer for support purposes. This might be difficult to sell as a public service, with security issues being of such concern, but it makes a lot of sense to a software support company dealing with its own customers.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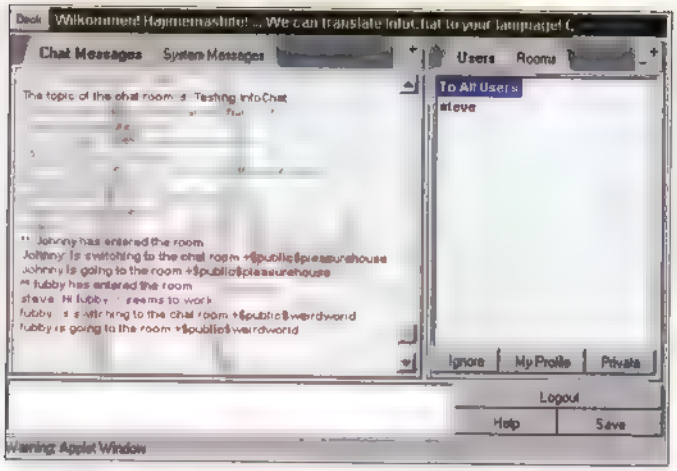
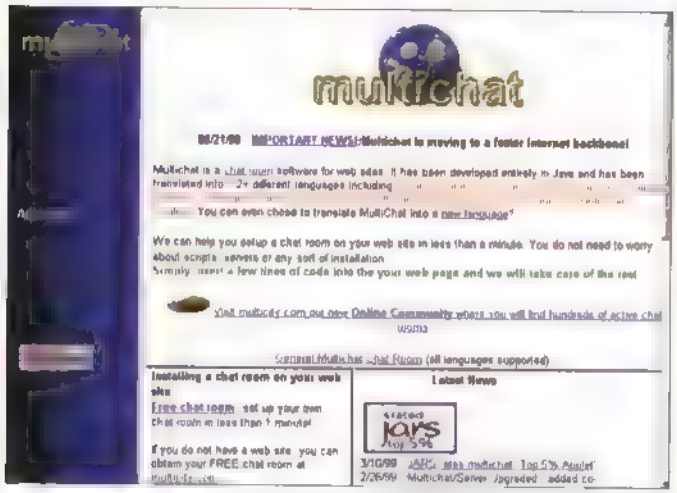


At the Infochat site (www.infochat.com) you can create chatrooms to order whenever you need one



Competition between chatroom vendors is fairly intense, which is an good indication of a mature technology. Multichat aims to create online communities, as well as selling solutions

Chatroom implementation

Let's start with the minimum possible setup, using a dial-up connection to your free Web space. This could also be adapted to suit a small site maintained by a specialist company without permanent Net access. You could use it for customer chat, with a company representative supplying support during stated hours.

There are two ways to do this. The first is to use a suitable Java server located on your site. The second is to use a Web server made available by a third party.

For most people on free Web space, the first option is often impractical as they're unlikely to have Java support from their ISP at the server end. The same problem applies to CGI-based chatrooms – the need to send the whole page after every update makes them extremely slow.

Someone else's problem

The second option is so simple it's practically the standard. Sites such as BeSeen and Yahoo! offer chat server access. You simply embed the snippet of HTML code supplied by the vendor into a Web page and you have an instant chatroom, with the server and clients maintained for you by a third party – this can usually be set to be public or private (unlisted). It's heavily customised and, for a small fee, most chatroom service vendors will let you use your own branding.

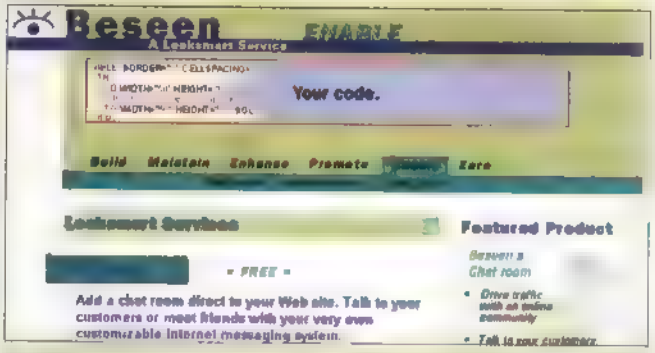
With this third party approach, the server is outside your direct control, but it can still be a better solution. You are dependent on the vendor's servers and its bandwidth and reliability, so check out what it's got. It might be offering you a better and more reliable service than you can provide yourself, so why try to reinvent the wheel?

There is also a question of security with third party chat rooms – they can collect a great deal of valuable information about you, your company and your customers. The licensing agreement usually gives the chatroom vendor access to the information in exchange for the service – so think about whether you're happy with that.

Setting up a chatroom

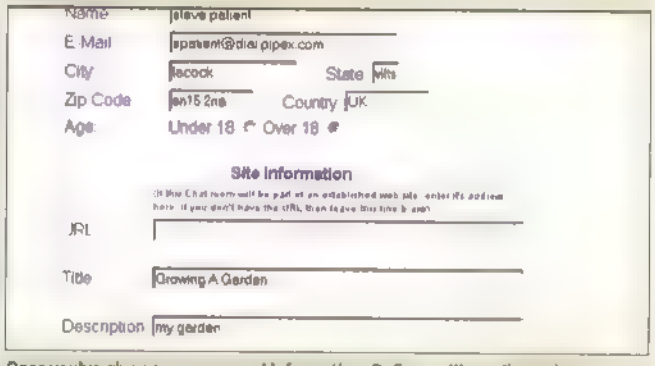
BeSeen is the easiest and cheapest way to create a personalised chat room, but a number of companies offer a similar service. You have to take BeSeen's ads, but for a fee you can have total control and your own branding

Step 1



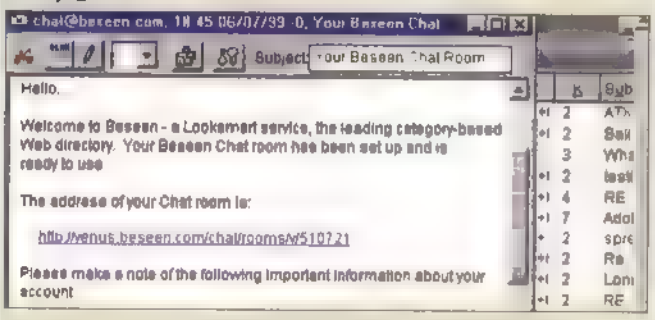
The biggest chat hosting service is BeSeen, and anyone can sign up here for a free chat room

Step 2



Once you've given some personal information, BeSeen will email you the information you need to continue

Step 3



BeSeen says the email should be sent in a few minutes. But it was two days before our information turned up, so don't worry if nothing arrives immediately

Step 4

```
<html>

<head>
<title>An Instant Chat Room</title>
<meta name="GENERATOR" content="Microsoft FrontPage 3.0">
</head>
<!-- Begin Beseen Chat room -->
<script LANGUAGE="JavaScript1.1"
SRC="http://phoebe.beseen.com/panel/p.jsp?prod=chat-venus-v51072l&emp,subject=home">
</script>
<!-- End Beseen Chat room -->


<body>

<p align="center"><big><big><big><big>An Instant Chat Room</big></big></big></big></
```

Among other information, including your access data and passwords, this is the personalised snippet of HTML code you need to add to your Web page

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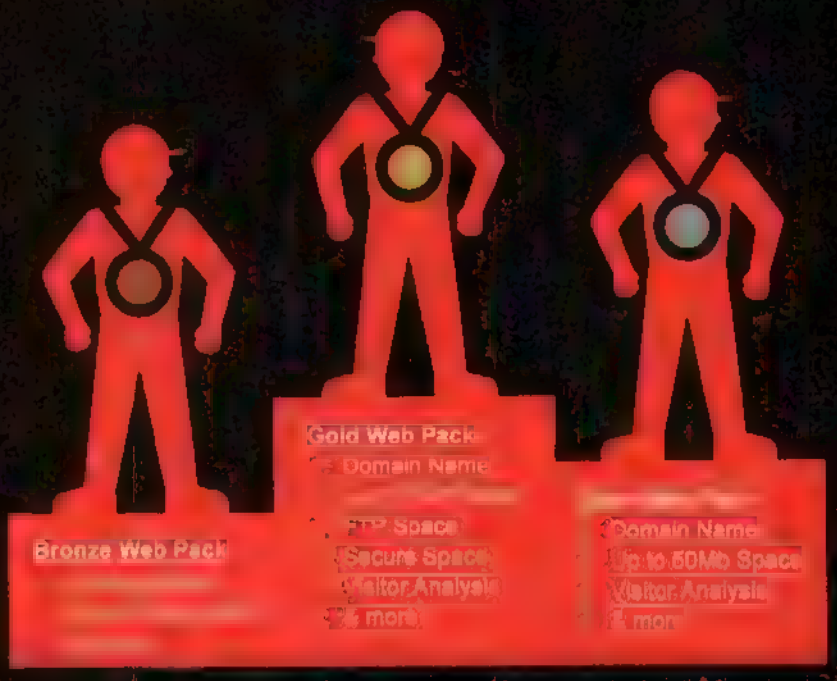

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Which server?

We've demonstrated these solutions running on the Windows NT4 Server, but most are Java-based. You can run them on any OS with a suitable Java Virtual Machine.

But if you're looking for a completely free chat solution, opt for Linux. It makes a highly efficient chat server (see Lithic Software's offering at **www.lithic.com**). You can run chat services on Linux for free using Blackdown's port or Sun's JRE (Java Runtime Environment), which you can get hold of from **www.blackdown.org**.

You won't have spent a single penny, but on the downside, it's difficult to know which version of the JRE you need to run with which distribution of Linux. Setting it up can also be a little fraught.

Thanks to the people on the Java-Linux mailing list, we got all the help we needed. As an alternative, you could use a standard free IRC server with IRC-compliant Java client software – there's a lot of choice.

The advantage from an admin point of view is the ability to set up a cheap chat server using Linux, and distribute the same client software to whatever other systems are in use. If one client fits all, as it should with Java, it's likely to work on whatever set of legacy systems you have. This means you won't have to upgrade or replace your existing systems to introduce a state of the art networking service.

Our experience shows that while installing and configuring the Java runtime environment isn't too onerous, it's time-consuming to do for individual machines. For this reason, it makes sense to run a Java-based server application but then, ideally, to distribute the client software as browser-based applets. Most of your systems probably already have a Java-enabled browser installed, so this should be easy to do.

Considerations

Setting up your chatroom software is only part of the solution. You still have to consider who you want to use it, how many people will use it, how you want them to use it and why they'd use it.

If the chatroom is designed to serve the needs of your customers, it's important to limit subjects of discussion to those that have something to do with your company. There'll be times when there aren't enough visitors to keep the chatroom interesting, so it'd be useful to have a searchable archive of conversations in case an issue has been discussed before. Think about providing an FAQ (frequently asked questions) section on the same page for reading online or downloading.

The most effective way to make sure your customers get value out of the chatroom is to moderate it. If you haven't got the resources to do this yourself, perhaps you could do a deal to persuade a trading partner, trainer, or customer to take on the job. Think laterally.

If you can't moderate the chatroom all the time, make sure that the opening page tells visitors when you are available to chat – and make sure you live up to your promises. The Web is live, and you'll be judged on how good your chat room is, so don't just theorise about what you think people want, try using it as though you're a customer. Does it work?

A bespoke service

There's no need for your chatroom to be completely public. If it's designed to offer direct support online and is permanently staffed, you can give passwords to customers. Alternatively, you could make their customer account number their password – many chat servers support this feature.

You can even use passwords to direct customers to the chatroom you've designed for them. For a really tailored service, you could have a presales chat room and separate support chatrooms for different products.

The Net gives you the advantage of offering a forum where customers and prospective customers can talk among themselves.

With file transfer features, you can use chat rooms to ascertain a customer's needs and deliver the right document, program or driver to them in real time. That's two or three days faster than your competitors can do it by post.

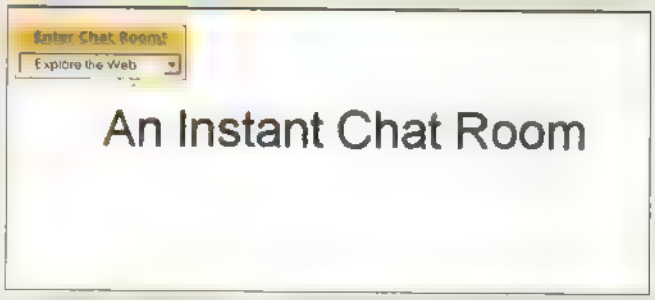
The same forum could be used to point customers at specific parts of your site, send them to an online registration or sales page or even collect details immediately. As most chat servers support a whisper (or private chat) mode, this can be completely secure.

What's my motivation?

The ability to exchange information in real time with your clients online means you can increase customer satisfaction and sell your products

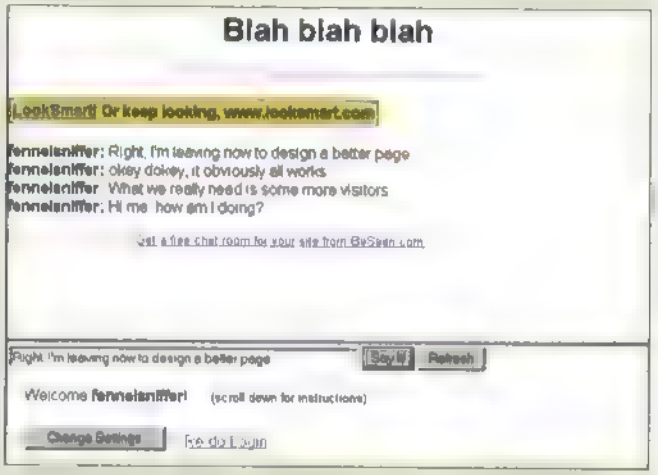
Setting up a chatroom

Step 5



And here's the Web page – just about as basic as can be – with the link to the chat room created by BeSeen's HTML

Step 6



And here's what you get when you click on the link. You can customise this page with a back link, title, colours and a background image

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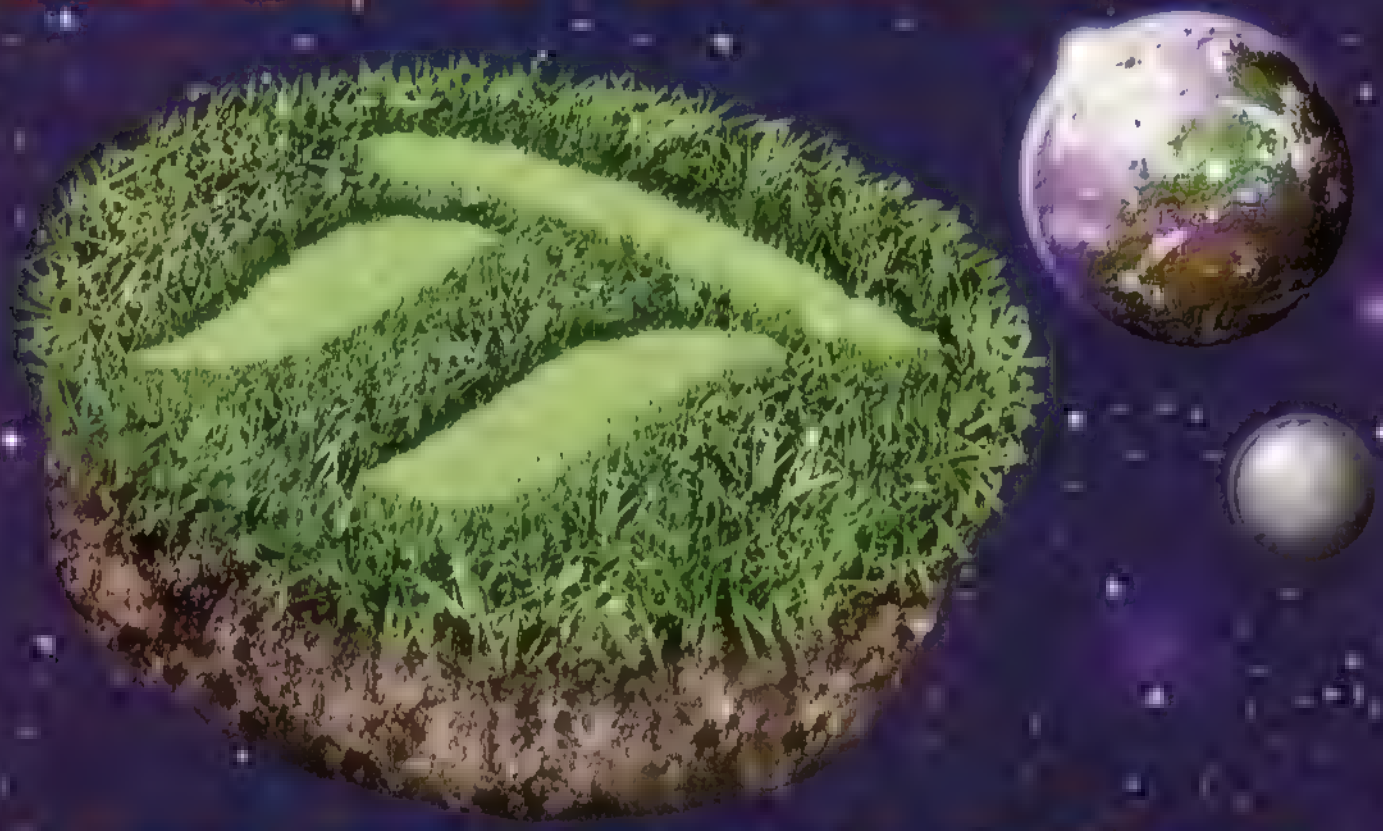

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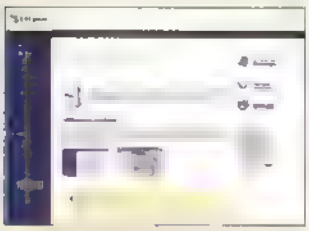
Chatroom links

- Conference Room – trial version
  www.webmaster.com/products/conferenceroom/cr-pe.shtml
- Free IRC server software under the GPL – IRCD 2.9 used to run Undernet
  ftp.irc.org/irc/server
- Eshare servers and clients for customer help lines

www.eshare.com
- Chatspace – free plus scaled commercial versions
  www.chatspace.com/download/index.htm
- IRCPlus – shareware server $50



www.ircplus.com
- Multichat – will host a chatroom for you
  www.multicity.com/Learn.htm
- Java-based chatroom hosting, free personal or pro
  www.parachat.com/getpchat.htm
- Chat site hosts – Java based
  www.beseen.com
- Java-based chat service
  www.sneakerchat.com
- Java based chat
  www.spin.de/commline/ice.html
- Free Java-based server and client
  www.lithic.com/java/PersonalChatware.html
- Chat Java applets and servers
  www.javaboutique.com
- Chat Java applets and servers
  www.jars.com

more efficiently. Java-based online chatrooms offer the most elegant and visitor-friendly solutions. There are niche and legacy areas where sites with an IRC server, a Usenet-based solution or a bespoke script-based chatroom would be more appropriate. But none of these solutions offer the range of features, simple customisation, low cost and ease of use of Java chatrooms.

The low entry costs and simple technical requirements make setting up a chatroom an excellent and hassle-free way of providing quality customer service.

Legal eagles

Before you rush off to set up your chatroom, it's worth being aware of the legal issues. Under UK libel law, it isn't just the author who's at risk of proceedings for defamation in chatrooms – the editor and publisher are too. Traditionally, the only defences are:

1. You can prove you aren't the person who authored or published the statement
2. You took all reasonable care in checking the facts before publishing
3. You didn't know about it.

The last is the usual defence raised by those running unmoderated chat rooms, newsgroups and IRC server channels. After all, the whole point is to provide a place to talk.

The law seems to regard chatrooms as publications rather than a conversations. This makes sense, as the conversation is published in real time to the world.

Since chatrooms and other conversation sites are controlled by whoever runs them, you will have editorial control over any you set up. You can choose to ban people from your site, remove messages, set rules for visitors, or even close down the system.

Since you have such a level of control, it generally means that once you've been informed of a defamatory statement on your site, you're obliged to remove it.

Conference Room

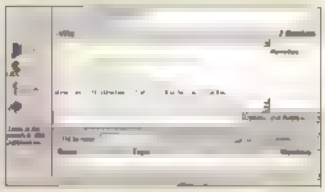
Webmaster's Conference Room server can run as an application or service. Here it's being run as an NT service

The Conference Room client runs in a browser window and is simple to set up and use

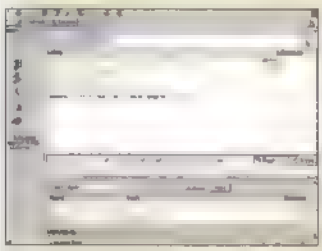
ChatSpace

ChatSpace Free Edition is large enough to support an online support desk for a small company or a conferencing facilities for an intranet

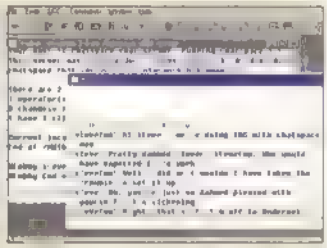
Once you've downloaded and installed ChatSpace, you'll have to register online. ChatSpace installs the serial number for you. Neat



The ChatSpace client is clean and simple. As with all the Java-based chat applets, you can have it floating and minimise your browser



The server interface is similar to the client, but it has a few more options available - such as total control over all the other users



The mIRC32 client connects easily to the local ChatSpace server. IRC clients are supported by most current chat applets, including MS Chat

If your chatrooms remain unmoderated, take sensible precautions. Put up a notice saying that the views of those chatting aren't their own, and that you're not responsible for them.

Ephemeral chat isn't too much of a problem. Once it scrolls off the screen, it's gone forever. But if you provide conversation histories and/or transcripts, be prepared to act quickly if there are complaints about the contents.

Perhaps the single most important precaution to take is to make sure you don't disseminate libellous material. If your chat is archived and accessible to others, check it before it goes out. People might overlook a fleeting comment, but a downloadable file full of libel is another matter entirely.

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Catching the Web thieves

The language behind Web pages is accessible to everyone, which means anyone can steal your design or pictures and claim them as their own. Richard Baguley tells you what can you do to stop the thieves and the action to take if you've been already been burgled

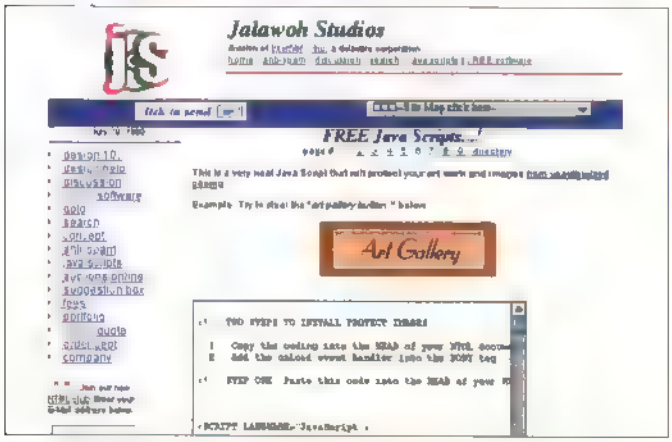
With only a couple of mouse clicks, anyone can look at how your pages are designed. So it's easy for an unscrupulous person to steal your code and use it on their own site. All they have to do is save your code and images, change a few details and put them on their own Web space.

Unfortunately, if someone's intent on stealing your HTML code or images, there's relatively little you can do to stop them. But there are ways to catch the thieves once they've committed the crime.

Identifying the pages

Web pages use a common language, but the content of your page is unique, which means you can track them down if they've been copied. Imagine you've created a Web page for a pet shop with the slogan "The best guppies this side of the Sargasso Sea". This phrase won't appear in many pages on the Web, so if you do a search on it, you should be able to find anyone who's stolen your pages.

Software such as Netscape Composer, which lets you download pages to be edited, has made it easier to steal other people's Web pages



Jalawoh Studios (at www.jalawoh.com/freescripts6.html) lets you download a free JavaScript program that protects the images on your site

The exact phrase option of HotBot (at www.hotbot.com) is particularly good for this, but several search engines let you search for an exact phrase or sequence of words. You have to be careful when you're choosing the phrase to search for, though – some search engines will reject queries which contain common words, such as the, at or .

We've seen instances of stolen Web pages where the thief hasn't even bothered to change the email addresses from the ones on the original page, so it's worth checking sites for content that can also be used to track down a thief.

META morphosis

META tags are used by search engines to identify the content of your page, so they're a good way to track down illicit copies. For instance, A2B travel has the following META tags in its pages

```
<META NAME="description"
CONTENT= "Complete guide
to travel in and around
Britain by plane, ferry, bus
and car. Includes flight and
holiday ordering, live flight
arrivals, and a booking
service for 33,000 UK hotels
and guesthouses.">
```

In AltaVista, if you type "Complete guide to travel in and around Britain by plane, ferry, bus and car," A2B travel appears at the top of your results.

Most Web page thieves don't know about META tags because they don't automatically appear on the screen. You can therefore trace design thieves by doing a search for the exact phrase you used in your META tags

If another site consistently appears near your page in the search engine results, it's worth looking at their source code. You'll need to use a search engine that scans META tags (such as AltaVista). There's a detailed list at www.searchenginewatch.com/webmasters/features.html.

Searching for the title

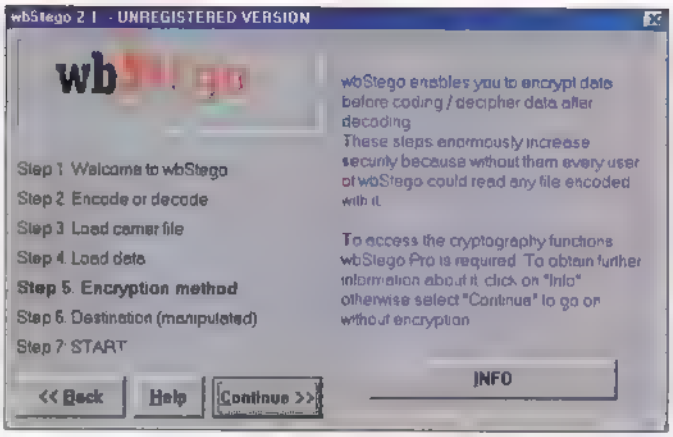
AltaVista also lets you search for pages with specific words in their title – the text at the top of your browser window.

If you do a search in AltaVista for Title: Guppies, it'll come back with a list of pages that contain the word Guppies in their titles. This is different to a normal search, which would look for the word in the main body of the page.

Protecting images

You can also get various tools to protect your images, such as digital watermarking. This involves a process where code is hidden within the data that forms the image, which can be extracted using special software.

Some companies offer an additional service where, for a fee, they'll search for any image files containing your code.



WBStego lets you hide a text file within an image, which can be used to track it later. You can download it from http://members.xoom.com/wbailer/wbstego/index.htm

You can provide some limited protection by using systems such as Jalawoh's JavaScript program (available from **www.jalawoh.com/freescripts6.html**). This prevents your visitor from using their right mouse button while they're on your site. This makes it hard for people to copy your images – but it's still not impossible.

You can also use various techniques to make your graphics look less appealing to steal. These include scarring and using low resolution versions of your images. We looked at protecting your images online in the June 1999 issue of *Internet Magazine*.

Bandwidth theft

Unfortunately, stealing your Web design isn't the only way people can use your pages. A more subtle (but potentially more damaging) problem is bandwidth theft – when someone uses your pages in their design without copying them. The images remain on your server, but the thief links to them so they appear as part of their own pages.

This is called bandwidth theft because the thief is using your internet connection without your consent. When people go to the thief's site and look at their pages, the images or other elements are downloaded from your site.

You pay the cost of the connection while someone else gets the benefit. As well as being annoying, this can cost you money – your ISP charges you extra if you transfer too much data. This is particularly true if you have big files, such as samples or movies, on your site. If they're duplicated on another site, they'll require a huge amount of bandwidth and your pages could be removed by your ISP as a result.

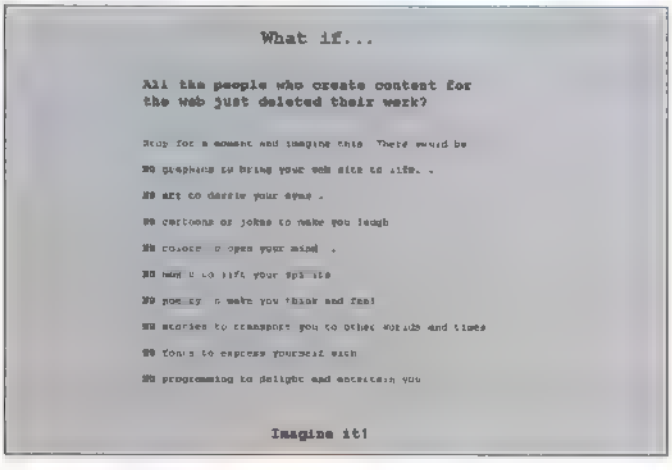
Imagine I'm a sneaky, low-down thief who's creating a page on a site called **www.mywebsite.com**, but I want to use an image called image.gif from another site called **www.othersite.com**.

If the image was on my Web server, I'd create a Web page with HTML that looked like this:

```
<A IMG SRC="image.gif">
```

But I don't want to do that, because I'm a sleazy scumbag who'd rather someone else pays for it, so I use the following HTML:

```
<A IMG SRC=http://www
othersite.com/image.gif>
```



The Grey Day campaign (at www.greyday.org) is designed to highlight and stop bandwidth theft by removing graphics from Web sites for one day in October

Case study: Blue Sky

Spot the difference: the Blue Sky communications site (above) and the ControlWeb site (below) as it was when Blue Sky discovered it

Matthew Winwood of Blue Sky Communications (at **www.blue sky.co.uk**) knows how it feels to have his design stolen – he discovered several months ago that a US firm called ControlWeb was using a design that looked similar to his company's site. "We found the other site by chance on a search engine listing – the descriptive text was exactly the same as ours," says Winwood. "In the end, this wasn't surprising as the site was almost an exact copy".

Blue Sky decided to see what action it could take. "We went through a number of emotions – from total surprise through to anger at the sheer arrogance of the other company," says Winwood. "We contacted a number of organisations for advice, and to find out if there had been any similar cases. Our legal position was good, but it was complicated by the crossing of international boundaries."

Despite having a strong case for legal action, Blue Sky didn't go to court. "The company removed the site as soon as it realised we'd found out about it. That would've been our first legal objective, but their company wasn't large enough to make further legal action worthwhile. It would've been costly and we wouldn't have achieved a great deal."

Winwood has some advice for people in the same situation: "Don't act hastily and assess the situation carefully – you might be able to prove legitimate damages, as well as theft of intellectual property. Decide what your objectives are. Do you just want them to stop using your design or have they damaged your business interest? Above all else, seek legal advice before you do anything."

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This'll be invisible to visitors to my site – the image will appear on the page as if it was coming from the same server as the Web page, but the other site will have to send the file.

Catching a bandwidth thief

Unfortunately, bandwidth theft can be difficult to spot. The best way you can monitor this is to keep an eye on the logfiles that your Web server produces – these keep a list of every HTML page, image or other file that people have downloaded from your site.

Logfiles can be huge, but you can get programs to produce reports of your downloads, such as Web Tracker (from **www.CQMInc.com/webtrack/webtrack.htm**) or the free Analog program (from **www.statslab.cam.ac.uk/~sret1/analog**).

If one file seems more popular than it should, you could be the victim of bandwidth theft. For instance, if you have a page that's only been downloaded 10,000 times, but an image on the page that's been downloaded 20,000 times, someone might be linking to it from another site.

Some Web servers can help you catch the perpetrator, as they record the name of the Web page that links to the file. This is called the referrer ID, and most logfile analysis programs can give you this information to show you where the request is coming from.

If your Web server doesn't record these details, you'll need to change its configuration or ask your webmaster to change the system.

Another possibility is the advanced features of search engines such as HotBot (**www.hotbot.com**) or AltaVista (**www.altavista.com**). Both of these sites let you search for links to a specific URL. You can therefore search for links to any part of your site by entering the full address of the image file you think is being stolen, and see who's linking to it.

Stopping a bandwidth thief

Once you've worked out who the perpetrator is, there are various courses of action you can take. As with Web design theft, a polite email is probably a good place to start. Remember, if the site was created for the owner of the site, they could be completely unaware of the crime.

If your email doesn't work, you still have various options. The first of these is to rename the files that are being stolen. Most Web page editing programs will let you do this and it shouldn't take long.

For instance, change the name of your image file from image.gif to image2.gif and change all the links to your image. You can now delete image.gif, which means anyone accessing your image on another site (the thief's pages) will get a broken image link icon instead of your stolen image.

If you really want to discourage people, you could change the files as described above, but leave a specially tailored picture behind. For instance, imagine if you came across a Web page that had an image with the words 'these images are stolen' – you'd probably think twice about going back to the thief's site (see the picture below).

Imitation or theft?

If someone's copied your entire page or site with only minor changes, it's a breach of your copyright, particularly if they've

Five top tips to stop (and find) the thieves

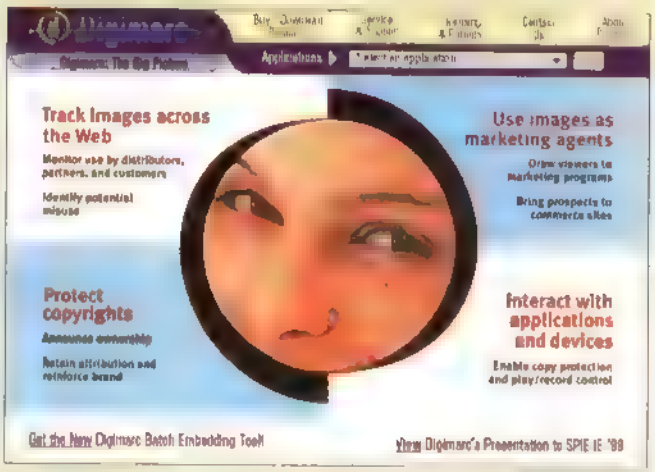
1 Make sure your pages can be identified

Put something in your page that's unique to you, such as a trademark phrase or image, and make sure you can prove you own it. Registering your identifier with the US Copyright office will help you in this respect.

2 Use META tags

Most thieves won't know about META tags, so they're a good way of finding illicit copies of your pages. Use them on your site and put your identifier in your META tags.

3 Watermark your images



Systems like Digimarc (at **www.digimarc.com**) let you hide a watermark in your image, which could be used to prove that it belongs to you.

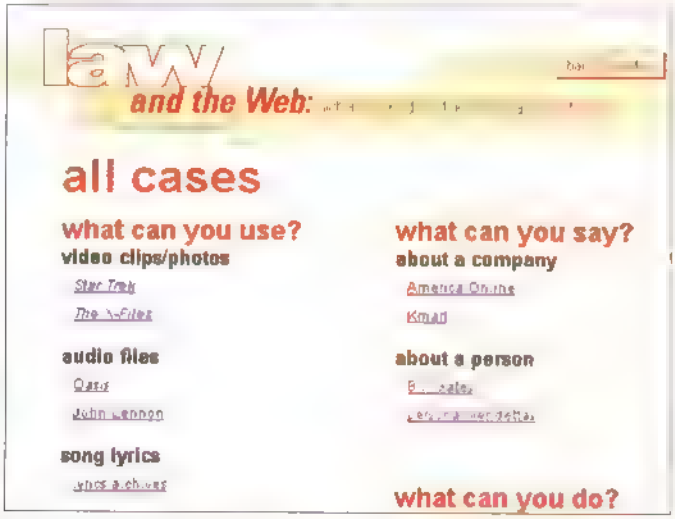
4 Do regular searches for copied pages

Use search engines to track down illicit copies of your pages. It's also a good idea to try several different search engines.

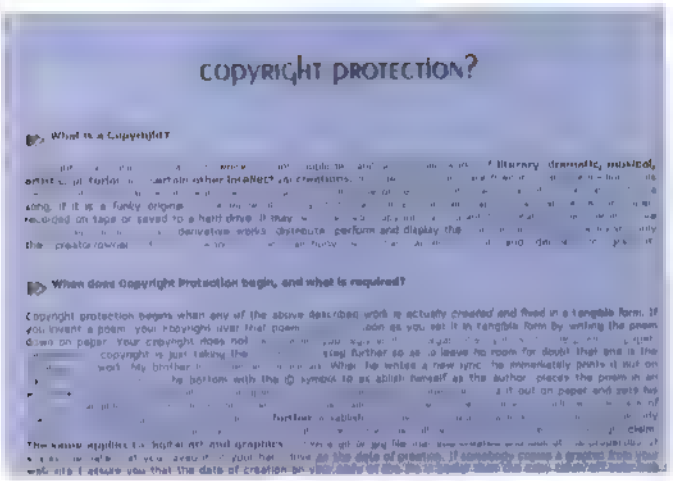
5 Don't let them get away with it!

If someone's stealing your pages, don't accept excuses like "I'm not making a profit from them" or "I didn't think you'd mind – don't you find it flattering that I thought they were worth stealing?" Be firm but reasonable with the perpetrator until they remove the pages.

If someone's linking to your images without permission, you could discourage them with a suitably polite message on the image itself



Builder.com provides background information on a number of legal cases about copyright or design theft at www.builder.com/Business/Law/ss01.html



There's an excellent guide to protecting your copyright on the Internet at www.whatiscopyright.org

appropriated your images and other parts of your design.

But the situation's more complex if you suspect someone's only taken part of your design – the legal arguments could be complex and expensive.

You wouldn't accuse someone of breaching your copyright simply because they've used a single HTML tag on their pages in the same way you have. But a sequence of HTML tags arranged in a certain order could be regarded as an original work that could be protected by copyright.

Copyright

There aren't many precedents that could be used to determine when HTML code becomes an original work, but there are plenty of lawyers itching to prove it.

By registering your page with the US copyright office, you can prove to a US court that you hold the copyright on a particular design or line of HTML code (such as specific JavaScript or a set of META tags). It's also cheap at only $20 (around £13) – see http://lcweb.loc.gov/copyright for more details.

Carl Oppedahl, of the US law firm Oppedahl and Larson, says: "The designer can recover attorney's fees and statutory damages, and you can also obtain an injunction. Removal or alteration of a copyright notice is also grounds for criminal prosecution in the US." Oppedahl and Larson has an excellent site with lots of good information on the law and the Net at www.patents.com.

There's several ongoing court battles in the US over trademarks in META tags. There have been several cases where a Web site has put a trademark that it doesn't own into its META tags to improve the site's ranking in search engines. The trademark owner has successfully sued the Web site.

For instance, Advanced Concepts had used the name Oppedahl & Larson (a registered trademark) in its META tags to get more traffic to its site. The law firm sued the company and got a court order stopping Advanced Concepts from using its name in the tags. You can get more details of this case at www.patents.com/ac.

What to do next

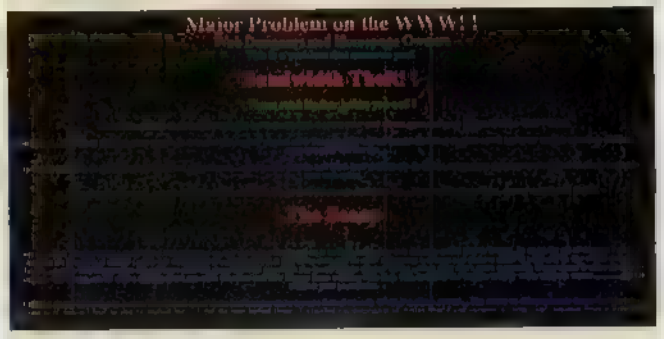
If you think someone's taken your pages, the first step is to send an email to the company or person behind the site. Remember that people might not realise the design is stolen – we've heard of cases where an unscrupulous designer has stolen a Web site and resold it to another company who thought it was an original creation.

Be polite but firm – point out that you (or your Web design company) created the design, that you own the copyright and that you haven't given them permission to use it. Ask them to remove the pages and set them a deadline. Be reasonable though – you can't expect them to remove and redesign a site in a few minutes.

If this doesn't work, consult a lawyer. A cease and desist letter from a legal firm often has more impact than an email. "In most cases, we don't have to do more than write a cease and desist letter and the offending material is removed," says Carl Oppedhal.

Unfortunately, there's no definitive solution to the problem of stolen Web design. But most thieves are lazy or stupid – they either can't be bothered to design their own site or they don't know how to. They'll remove the stolen pages quickly if you persuade them you're serious about protecting your copyright.

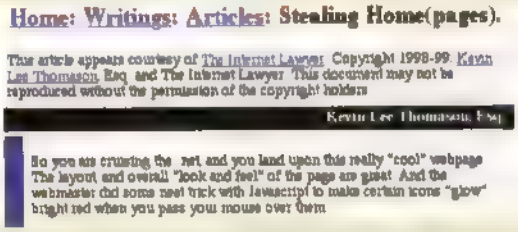
Five top sites on Web theft



Bandwidth Theft

Explains how bandwidth theft works, and gives a few good hints on how to deal with it.

www.kats-korner.com/action.html



Theft of HTML Web pages

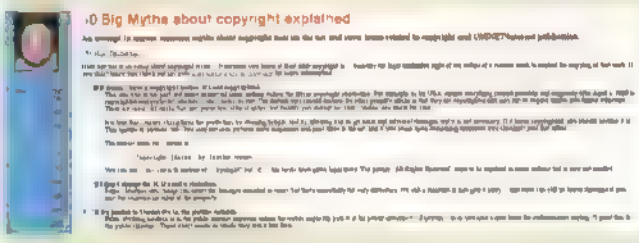
An interesting article from a legal expert on how the law regards Web page design in the US.

www.kevinleethomason.com/articles/til-stealing-homepages.html

Webmasters Against Hole Site Theft

Contains a few interesting examples of bandwidth theft from sites about Courtney Love's band, Hole.

www.geocities.com/SunsetStrip/Studio/5984/wahst.htm



10 myths of copyright

Blows away popular misconceptions on how copyright works.

www.templetons.com/brad/copymyths.html

Intellectual property law primer

An excellent (but fairly technical) briefing on how copyright law really works – you might want to print this one rather than read it on-screen.

www.eff.org/pub/CAF/law/ip-primer

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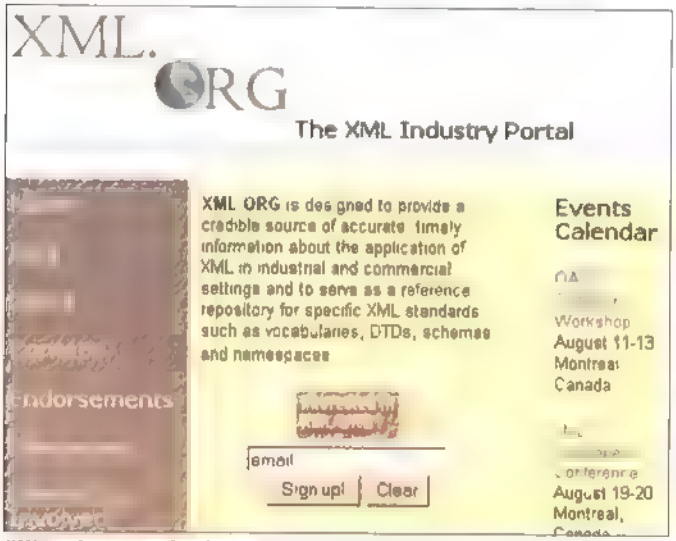
A practical guide to XML

XML might not mark the end of HTML, but if you want to survive in the Web development market, you need to start taking it seriously. Davey Winder explains how the language works and how to create an XML document

Your brain has an incredible ability to decode visual information. You can instantly recognise a list of words and numbers as an index, or numbers displayed in seven rows of five columns as a calendar. So far, your humble computer hasn't been able to compete. HTML just formats bits of information in different ways according to the tags surrounding them. But XML, the eXtensible Markup Language, is set to change all that. It shifts the emphasis away from document display and firmly onto document structure. By separating structure and content, an XML document can be displayed in many different ways.

This document could be displayed, with the same accuracy, on a PC screen inside a browser window, on a Palm PC or even via a speech synthesis device. A solitary XML document can be interpreted by a XML capable browser and tailored to the device it's running on – this is a central concept of XML implementation.

XML was adopted by the World Wide Web Consortium (W3C) as an official specification in February 1998. It defines other languages and it's a common syntax for expressing structure in data. So has HTML reached the end of its useful life?



XML.org (at www.xml.org) describes itself as the XML industry portal, and we'd agree with that. A good launchpad into the world of XML online

Plenty of the industry's bright young things seem to think so.

HTML doesn't lend itself to the creation of dynamic design. It consists of mark-up tag containers that tell a browser client how to display content. HTML has a moderate learning curve, coupled with user-friendly syntax and an almost universal standard.

But on the downside, HTML has rigid and limited formatting, a lack of flexibility and links that are easy to break – it's showing its age. HTML browser clients don't validate documents properly – they ignore syntax violations. HTML has no real concept of structure, resulting in useless and flat documents. But worst of all, HTML is not extensible, so you can't express content display without adding proprietary extensions – the cause of two major bugbears, browser wars and browser bloat.

XML explained

XML, a streamlined and highly focused offspring of the 1986 ratified Standard Generalised Markup Language (SGML), could be the saviour of HTML, and heralds a new age for the Web.

Since it was formally accepted by W3C, XML has started to take hold. This is hardly surprising, as it consists of a rule set that anyone with some degree of development skill can use to create a markup language for their own specific use.

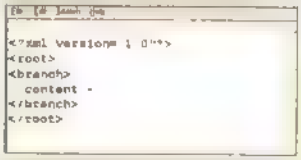
It's the acceptance of these rules that lead to a single parser being able to understand, interpret and process all of these new languages. A medical metaphor is often used to explain XML. Using HTML, a doctor could easily look up your medical records from within the surgery intranet, but those same records couldn't be transferred to another doctor or a hospital and be automatically integrated into their database.

This is because the HTML coding simply informs the surgery intranet browser client to display the information as a header here <H1> or bold there <BOLD>. HTML cannot tag an identity, as opposed to what something looks like – there's no <patient> tag, or <allergy> tag. You could try getting W3C to ratify a tag into the HTML standard, but it's a long, drawn out and bureaucratic process. By using XML to describe the content, and leaving its display to the device it's being viewed on, you'd only have to write the code once to publish it anywhere.

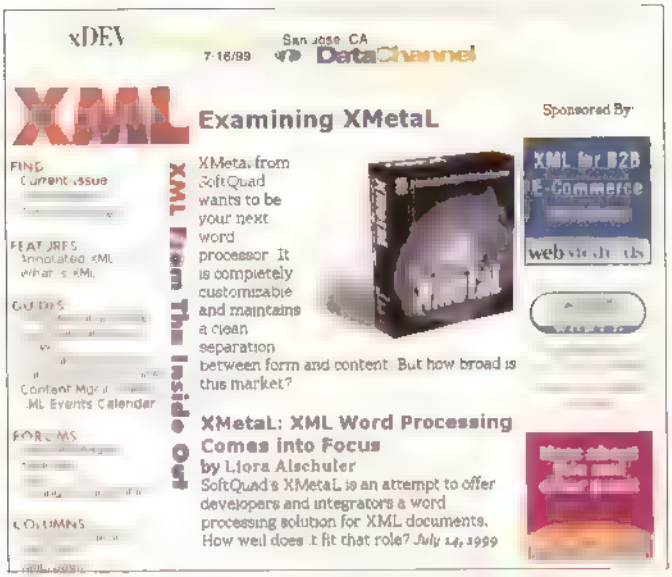
The power in XML comes from interaction with the Document Object Model (DOM) – the interface to a document's structure that defines the mechanisms it will use

Creating an XML document

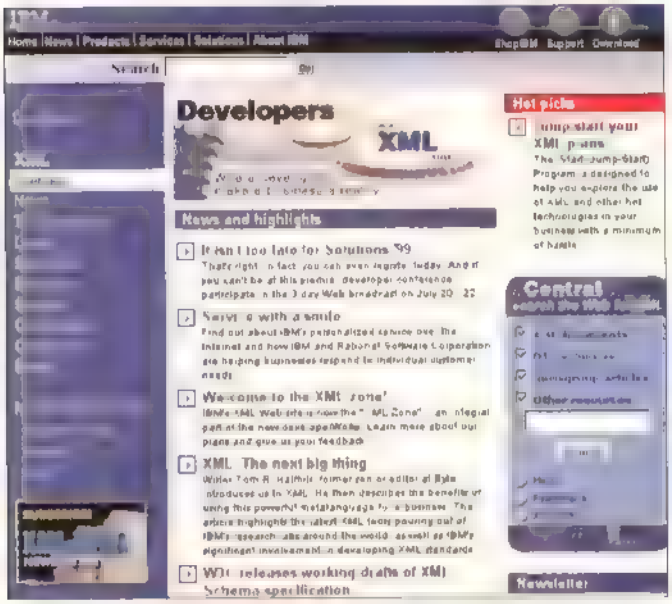
Step 1



At its simplest, XML isn't that different to HTML. You start with a declaration that this is an XML file, together with the version of XML you're using. XML markup – information about the content – follows a nesting structure of roots and branches. The root markup encloses the branch markup, so the tag pair of a branch must be contained with the root tag pair. All XML markup must have opening and closing tags, and empty markup (no content) must start with < and end with />. Follow these basic rules and you'll create an example of well formed XML.



XML.com at www.xml.com is a self-contained shrine to all things XML, and an excellent source of technical reference for the serious developer



IBM's XML site at www.ibm.com/developer/xml is impressive, offering the full gamut of news, tools, standards information and even code to play with

for data access. The DOM makes various elements of Dynamic HTML accessible through language independent scripting. This can make interaction with the client side much easier, and doesn't involve overloading the server with extra work.

The DOM lets you produce standardised scripts for dynamic content, so you can use specific content to create a specific action. Adding XML to the equation gives you access to the technologies needed to build the next generation of Web-based applications.

But in order to harness this power, you have to understand how XML works. It's fairly complex, and involves a lot of acronyms, but if you want to stay ahead, it's time to learn. The first step is to grasp the three key structural elements – Document Type Definition (DTD), eXtensible Style Language (XSL) and eXtensible Link Language (XLL).

Defining the document type

The DTD concept, inherited from the SGML parent language, is vital as it can create templates for document markup. DTD is the collection of syntax rules as they apply to tags, defining which tags can be used within a document, as well as their ordering and relationship to each other.

The DTD can be either part of, or apart from, an XML document – but unlike HTML, XML has no universal DTD. The benefit is that any industry or company wanting to use XML for data exchange purposes can define its own DTDs to suit its specific purposes.

This ability to control and validate the placement of markup tags provides a formal set of rules for document structure.

If a document conforms to the rules of a specific DTD, it's 'valid'. If it doesn't conform to a DTD, but follows the general rules of XML syntax, it's 'well formed'.

HTML lets you use even the worst type of coding, because the browser client will be able to read and display it. Poor HTML code can be something like:

```
<TITLE>How Bad Is This?
  </title>
<P>Look at this <IMG src=
  picture.jpg>
```

The browser client will cope because its built-in error handling code can deal with Web developers who don't truly understand HTML coding. But the same code in XML terms is not well formed.

To turn badly coded HTML into well formed XML, you need to enclose it in a document type defining <HTML> tag pair. You also need to make sure that upper and lower case letters match within tags, that attribute strings are enclosed in quote marks, and that tags are closed using an end tag or a self-documenting delimiter of "/>". If an XML document isn't well formed, it doesn't get parsed and you won't be able to see it.

The DTD specifies the logical structure of an XML document, so you can define its grammar and a parser can validate the document's use of XML. DTDs define the elements and attributes of a page, and the relationships between them. Over time, a library of DTDs will emerge and you'll be able to choose a predefined DTD rather than having to create your own.

The XSL and XLL factors

Only a truly geeky masochist likes reading HTML source code and raw XML data is just as complicated.

But developers still need a way to control the design, display and output of information held in XML format. The content of an XML element has no explicit style and can be rendered differently according to device and application.

One retained style for all elements wouldn't work because different classes of information have to offer different visual cues to the reader.

The eXtensible Style Language (XSL) is more powerful than cascading style sheets, so you can create documents that change appearance dynamically, yet don't require additional interaction with the server.

Creating an XML document

Step 2

```
<?xml version="1.0"
<!DOCTYPE root SYSTEM "music.dtd">
<root>
<branch>
  content
</branch>
</root>
```

The next step is to move to a far more powerful and useful valid XML document. Valid XML is more complex than well formed XML and requires a number of different components. Perhaps the most important of these is the Document Type Definition (DTD), which specifies each part of the document and leaves its proper form in no doubt. DTDs are enclosed between an opening [and a closing], and contain element declarations which define the tags that can be used in a document and the relationships between them. They can be referenced externally to a file containing the relevant definitions – here the DTD file would be called music.dtd.

Step 3

```
<?xml version="1.0" standalone="yes"?>
<!DOCTYPE root [
        <!ELEMENT root  item*>
        <!ELEMENT item  song?  singer?>
        <!ELEMENT song  #PCDATA >
        <!ELEMENT singer (#PCDATA)>
        <!ATTLIST item name ID #REQUIRED>
]>
<root>
<branch>
  content
</branch>
</root>
```

A DTD can also be contained within the document itself, so you can declare it as standalone. In this example, the * shows that the root element can contain any number of item elements (including none). The ? shows that song and singer elements may or may not be included in the item element. The #PCDATA shows the song and singer elements can contain only text data. The <!ATTLIST statement simply defines those attributes as being associated with the specified element, so here the item element has an attribute called name (containing a unique ID) that's required for the XML to be declared valid.

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XML at a glance

Even if you're well versed in HTML, you'll find the amount of jargon used in the XML world a little disturbing, particularly when the languages share terminology with different meanings. Our XML jargon primer should help you get started

Attribute The property of an element, providing metadata for that element.
Character Data The text characters that aren't specifically markup characters are known as the document's character data.
Child Element Those elements contained within another element are know as child elements.
Document A class of data object. A document could be a set of database records or a piece of text.
DTD The Document Type Definition is used, optionally, to specify the parts of a document.
Element The logical data structure within an XML document.
Entity A storage unit that can be a simple textual string or a complete file.
Namespace A set of unique identifiers, an environment where element and attribute names are guaranteed to be unique.
Parent Element An element containing other elements.
Root Element The root that contains all other elements in a document.
Valid Any XML document that follows all the rules of an associated DTD. A document must be well formed in order to be valid
Well Formed A document that follows the XML rules, but isn't valid according to an associated DTD.

Elements can be formatted and displayed in several places within a document, and multiple style sheets can tell one data set to deliver to different platforms or output devices. For instance, a manual could change pace according to its user, with different styles for beginner, intermediate and advanced. All of them could be generated from the same data

XSL handles multiple tags in several ways, so it should bring advanced layout techniques to the Web. It supports simple CSS objects and complex DSSSL concepts, such as flow objects, where text can flow into a template and apply style construction.

The eXtensible Linking Language (XLL) supports simple links in HTML documents, but it also works with advanced concepts, such as extended links. Extended links refer to multidirectional links that take you to multiple locations.

Extended links work like a Web ring – clicking on an icon could take you through a linked list of URLs. XLL also lets you identify resources by contextual location, so you can create a link to a resource that has no unique identifier.

More additional features are being discussed by W3C and will be included in the eventual ratified specification for XML. These include XPointer and XLink.

Xpointer lets you 'address to' any part of someone else's page. With HTML, you could only 'link to' that site if the author had used an anchor tag. Xlink lets you add behaviours to links, instead of using JavaScript to pop up a separate window or dialog box, XLink can deal with the link without any extra coding.

The future

So what's happening with XML now, and what does the future hold? You only have to look at the plethora of markup languages that are appearing as a result of the XML standard. MathML (MML) makes it easy for mathematicians to include equations in their Web pages – HTML required them to use images of equations.

Now it's just a matter of inserting a few lines of appropriate text and the equations appear on the page. These expressions can be pasted directly into applications, such as graphing software

Chemical Markup Language (CML) lets chemists graphically render molecular structures in Web pages. BiosequenceML (BSML) is used for exchanging and manipulating gene mapping information. But perhaps the most intriguing language is the Astronomical Instrument ML (AIML), which is being developed by NASA to let ground-based engineers control the SOFIA infrared telescope, as it flies miles through the air aboard a Jumbo Jet.

Back on terra firma, the Commerce XML (cXML) standard for providing secure business to business Web exchange is gathering momentum. It's hoped cXML will provide real-time information exchange and transactions over the Internet.

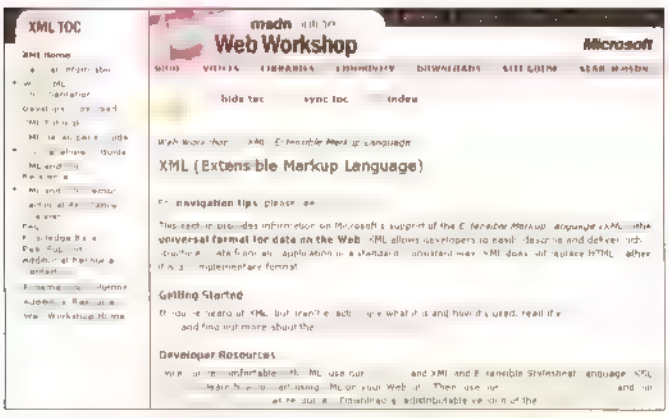
The latest specification drafts include order definitions (Order Request and Order Response), which take the role of purchase orders and purchase order acknowledgments. There's also punch out definitions that let buyers punch out of the shopping session to a remote host without losing what's in their cart. Catalogue definitions contain supplier, index and contract elements.

Conclusion

As a Web professional, you need to ask yourself whether you should be expending your time, talent and hard cash on getting to grips with XML now

If you have to manage vast quantities of documents stored in databases, or if you specialise in developing e-commerce sites, the answer is unequivocally yes. But if your daily work involves marking up straightforward information for one to one, Web to browser use, the need to learn XML is less apparent. HTML can cope with the direct presentation of information to the user, but if you're considering automatic data processing, now is the time to start learning about XML. There's no need for every HTML coder to retrain in XML, any more than every HTML coder needs to be a great Java programmer.

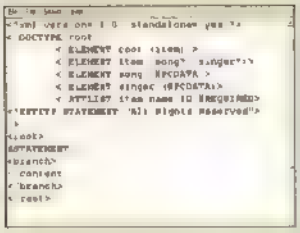
But an XML expert is a great asset to any company, and if it's a Web design firm, it should recruit or train at least one member of staff. And if you're a one-man band, the more instruments you can play, the more versatile your repertoire becomes, and the more customers you can attract.



Microsoft has a useful site devoted to all things XML at http://msdn.microsoft.com/xml/default.asp. It's a good source of tools, tutorials and technical assistance

Creating an XML document

Step 4



A DTD can also contain an entity reference that points at something which can be inserted into the XML document at a given time. So the line `<!ENTITY STATEMENT "All Rights Reserved">` will insert the text "All Rights Reserved" at any point where `&STATEMENT` appears. Similarly, you could use an external file for insertion wherever `&BONGO` appears by using `<!ENTITY BONGO SYSTEM "bongo.xml">`.

Step 5

That's it. You've created a valid XML document, albeit a simple one. The same rule set applies, no matter how complex your documents become. If you're already proficient with HTML, there's no reason why you shouldn't be able to pick up XML coding with relative ease. One tip worth remembering is that while you're sharpening your skills, you can run the code through Internet Explorer 5, which acts as a parser, and displays XML without fuss.

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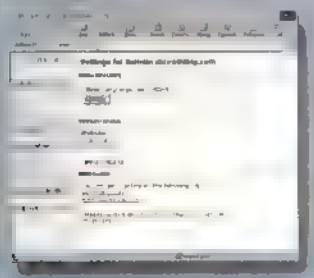

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tried &tested

This month's reviews // labs test / software / hardware / ISPs

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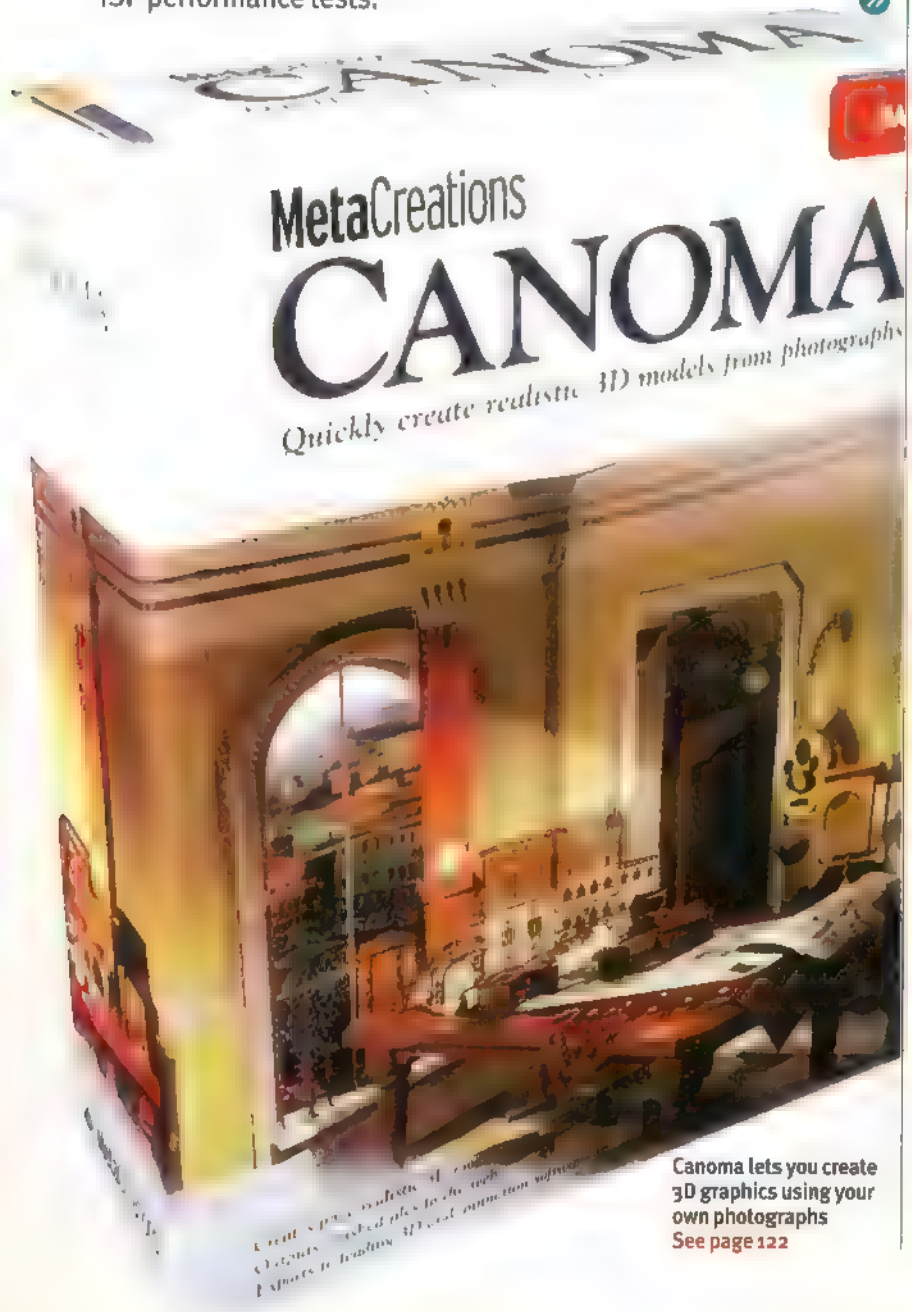


Canoma lets you create 3D graphics using your own photographs
See page 122

Key reviews for September

This month's labs test puts six of the best Net phone solutions through their paces. Can they really compete with conventional phones and save you a packet at the same time?
See page 110

Flash is recognised as the industry standard for Web designers around the world. The latest version, Flash 4, has plenty of new features
See page 119

Pine Technology's D'music MP3 player lets you make copies of your favourite songs from your CDs
See page 120

Realjukebox lets you copy your CDs onto your hard disk in a simple encoding process
See page 120

What are people in your company looking at while they're on the Web? Find out with WebSpy 2.5
See page 121

Sony's Cybershot DSC-F55E lets you add pictures, sounds and movies to your site
See page 122

Don't worry about the hassle of creating an e-commerce site. AlphaCart is a low-cost, easy to use Web site builder
See page 123

Our exclusive ISP labs tests are the biggest and the best. Don't choose an ISP until you've seen the results
See page 122

Star Ratings

For the price of a local call

Making phone calls over the Internet has been possible for some time, but now the Internet is becoming fully integrated with the normal phone system. Richard Baguley and the labs team test out six ways to get your calls on the cheap

The Internet rivals the telephone in more ways than you might think. Most of us have figured out the benefits of sending email over phone calls or faxes, but what a lot of people don't realise is that you can make phone calls over the Internet (known as Voice Over IP, or VOIP). VOIP is set to become even more popular, because it's far cheaper than normal phone calls.

If two people are using a computer to talk, all they'll pay is the cost of a phone call to access the Internet. If they have a leased line, the call is free from then on, even if they're in different countries. With a dial-up connection, you pay no more than a local call. So it's not surprising that companies that spend a lot on international phone calls are looking eagerly at VOIP to reduce their bills.

Integration is key

Until a few months ago, you could only make Internet phone calls if you and the person you were trying to call had a computer and the right software, but this has changed. Systems aimed at home users, such as Net2Phone, and professional systems like the Mult Tech MiltiVOIP200 (reviewed in the May 99 issue) are bringing the normal telephone network and Internet telephony closer together.

People can use whichever is most convenient without having to get too involved in how each call is transmitted. In time, this process should become completely transparent, with systems that automatically decide on the best way to route the call when you pick up the phone and dial or click a button on your computer. We're still some way from this ideal, but the telephone companies are beginning to realise they have to go with this trend or lose business.

How it works

The way phone calls are made over the Internet is simple. Most modern computers have a soundcard – a device that can record and play back sound. The soundcard can take a sound source (such as a person talking) and transform it into digital data. A Net phone program takes this data, compresses it and sends it over the Internet to another computer, which reverses the process (see figure 1 above).

Figure 1

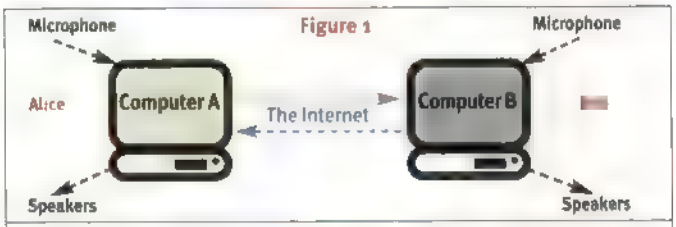
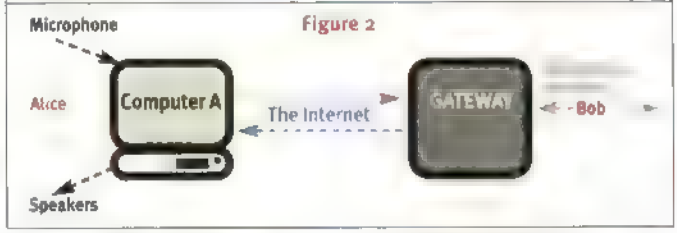


Figure 2



Most modern soundcards can record and play back sound at the same time (called full duplex), so you can talk and listen at the same time, as with a normal telephone. Older soundcards can't do this – they can only play back or record. This makes the phone call more like a radio conversation, where one person talks while the other listens.

There are some problems with making phone calls over the Internet. The process of compressing and decompressing the sound at either end takes some time, leading to a slight delay, which can sound like a poor quality transatlantic phone call.

This delay can also be caused by data bouncing around the Net – a normal phone call goes straight to its destination over a dedicated connection, but data sent over the Internet can often get bounced around the globe. The route it takes depends on how the companies handling the data decide to send it. This delay (or lag) can sometimes be as little as a few milliseconds, but once they get up to a few seconds, your calls start sounding like they've been bounced off Mars. Both ends of the conversation need to compress and decompress the data in the same way – see The importance of Standards (below) for more details.

This process also relies on both ends of the conversation using a computer or similar device. But several companies (including Net2Phone and VocalTech) have developed ways around this need by using gateways.

Gateways take the digital data from the Net and send it over the normal telephone network. For instance, imagine that Alice in the US wants to call Bob in the UK over the Net2Phone system (see figure 2, above). Alice sets up her computer, launches the Net2Phone software and enters Bob's number.

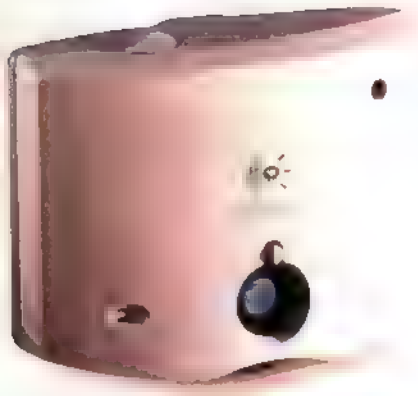
The Net2Phone system connects to a Net2Phone gateway in the UK, which dials the number on a normal UK phone line. Bob answers the phone and talks and listens as normal. The gateway converts his voice into digital data and sends it over the Net to Alice. Bob doesn't even need a computer.

The importance of standards

A couple of years ago, connecting to someone with an Internet phone program was a nightmare. There were no standards – every program had its own way of compressing the data and sending it over the Net. So if you wanted to talk to someone, you needed to use the same program, and that meant knowing which program they were using.

Fortunately, things have changed, thanks to the development of standards such as H.323 (for person to person connections) and H.332 (for conferences of more than two people). These provide a standard way for different programs to connect to each other, so that a NetMeeting user can connect to a CU-SeeMe user. In theory, any program that understands H.323 can connect to any other program that also understands the standard, but this doesn't always work. You can find out more about the H.323 standard at http://standards.pictel.com/reference/9706_itca_h323/default.htm.

H.323 isn't a complete solution. There can still be problems between different programs that don't use the same codec – if the two programs can't agree on how to compress and decompress the data, they won't be able to work together. Fortunately, this is less of a problem than it used to be, as most modern Internet phone programs come with several different codecs, so there's usually one that they can agree on. You can find more information on the hundreds of codecs available at www.terran.com/CodecCentral/Codecs/index.html.



Cheap video cameras, such as the Logitech QuickCam, can be used for sending video over the Internet

The main benefit of this is price – a 10 minute off-peak call over the Net2Phone system from the UK to the US will cost around 65p. The same call at BT's off-peak rate will cost £2.25 – a worthwhile saving.

Have we got a video?

There's one distinct advantage that a Net call has over a traditional one – you can send and receive video as well as sound. Some of the programs on test even started out as video conferencing systems.

If you want to send video, you'll need a video camera, but they aren't expensive. You can get the Logitech QuickCam (pictured above) for under £70, or the Philips PCA645, used in these reviews, for around £100.

Finding people

Once you've got the software and hardware set up, you'll need to find someone to talk to. Unfortunately, this can be a problem thanks to the way ISPs set up your connection. Every computer connected to the Internet has a unique address (called your IP address) that looks something like 194.72.242.1. The computers that send data around the Internet use this address to work out where the data should go.

If you have a leased line or some other kind of permanent connection, this number will always be the same, so you can give people your address and they can connect to you. But if you're using a dial-up connection, your IP address changes every time you connect, and there's no way to find out what it's going to be in advance, because your ISP assigns numbers from a pool as people connect.

Without an IP address, you have to use a directory service. The most widely used is Microsoft's Internet Locator Server (ILS), which is included in Microsoft's BackOffice server product (at www.microsoft.com/backoffice).

If your program supports ILS, it'll contact the ILS server every time you launch the program and give the server your details. If someone is looking for you, they can open the directory listing in their Internet phone program and search for you. If you're online, your name will be listed, and they can call you with a couple of mouse clicks.

Many ISPs are running ILS servers, and several companies are setting up their own ILS servers so their staff can use Internet phone systems. There's a comprehensive list of ILS servers at NetMeeting Zone (at www.netmeet.net). Alternatively, you can use ICQ's instant messaging service to track down people you want to call. See www.netmeet.net/buddy.asp for details on how to set this up.

NetMeeting ZONE

Find a NetMeeting or CUSeeMe 4.0 conferencing partner with this list of ILS servers

This list contains only the best ILS servers on the Internet. We will soon have up a more comprehensive list of servers

These servers have been checked by a human set of hands and represent the best and most reliable servers on the Internet for NetMeeting and CUSeeMe users. If you want your server on this list visit our "..." page. These servers last checked on 5/3/1999

ILS SERVER NAME	COUNTRY	COMMENTS	E-MAIL CONTACT
ils interserver.com.ar	Argentina	Spanish speaking	
ils sol.net.ar	Argentina	Spanish speaking.	manojd
ils copetel.com.ar	Mar del Plata, Argentina	COPETEL Internet	francisco
ils.netcon.net.au	Australia	Bendigo Senior Secondary College	knob
ils.meeting.advalvas.be	Belgium	advalvas.be	p
ils.meeting.atmosphere.be	Belgium	atmosphere.be/	

The NetMeeting Zone (at www.netmeet.net) provides a list of ILS servers that can be used to find people using Internet Phone software

APLIO

Aplio Phone

You won't need a computer, but you will need at least two Aplio Phones for a call

A different approach to calling over the Net – you don't even need a computer

The Aplio Phone is a standalone device that plugs straight into your telephone line. The basic operation is simple – you just call someone who owns another Aplio over the normal telephone network. One of you presses the button on the front of the device and waits.

The two Aplios exchange some information, hang up, and connect to the Internet using the built-in modem and the ISP details you've programmed into them. You can then talk over the Internet. The Aplio is connecting to your ISP, so all you pay is the cost of a local call, regardless of where you're phoning.

This sounds complicated, but it's simple in practice. Once the unit has been set up and you've made your call, all you have to do is push the button and wait. Connecting to the Internet and setting up the call takes between 45 seconds and a couple of minutes, and it was reliable whenever we tried it. There are other ways to connect, such as going online at a preset time and waiting for an incoming call, which avoids the cost of the initial telephone call.

Sound quality is good, although the compression and decompression process introduces a noticeable delay, rather like a transatlantic call.

The Aplio is controlled and programmed through the telephone handset, which is something of a mixed blessing. It avoids the complications of having a computer connection, but entering things like your ISP account name and password is a bit of a pain. You only have to do this once, though, so it's not too inconvenient.

We originally reviewed the Aplio Phone in December 1997, but Aplio has launched a new version of the software that runs the device. There are a number of new features, including H.323 compatibility, which means you can use the Aplio Phone to connect to people who are using other Internet phone software, such as NetMeeting (page 116) or CU-SeeMe Pro (page 113).

But this type of connection can only go one way – you can't call another computer user from the Aplio – they have to call you. Since this new version is a software upgrade, you can update your old Aplio Phone. You choose an option from the control menu and the system automatically downloads the new software from the Aplio site.

The Aplio Phone does an excellent job of making phone calls over the Internet. It's certainly cheaper and just as easy as using your normal telephone. But you don't get any added benefits, such as video and conferencing, that the other programs provide.

Aplio has introduced a chipset version of the Aplio Phone called Aplio TRIO. The chipset will let telephone manufacturers or telephone switchboards build an Aplio Phone option into their products.

This brings the possibility of a combined telephone and Aplio Internet phone on the market soon, which would give us the best of both worlds.

★★★★½

Aplio Phone
Price *$199 (around £119)*
Pros *Simple to use, cheap international calls*
Cons *Awkward to configure*
Contact *Viper*
Phone *(01623) 422 733*
www.aplio.com

[Sloth]

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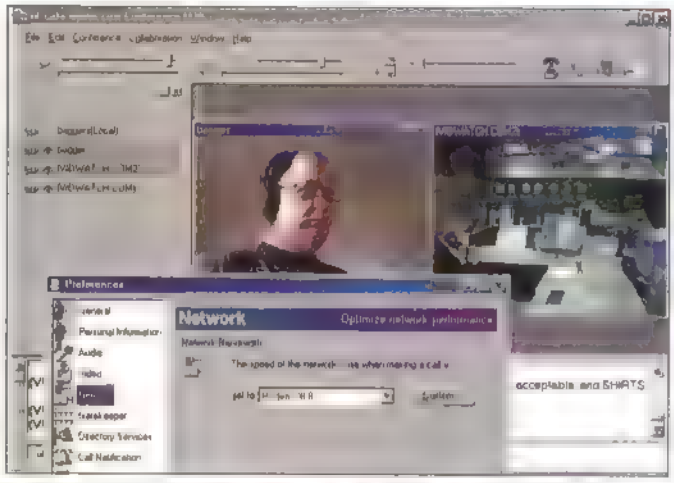
www.cobaltnet.com phone 0118-925 4264

COBALT NETWORKS

WHITE PINE SOFTWARE

CU-SeeMe Pro



The interface has been completely revamped, but it's tricky to get to grips with

The most popular Net conferencing program has had a makeover, but is it any better?

CU-SeeMe is one of the oldest Internet phone and conferencing products on the market. It began life as the project of some students at Cornell University in 1993, and went commercial when White Pine Software bought the rights to the software in 1998.

White Pine has released a new version with plenty of new features, including H.323 support and the ability to use Microsoft Internet Locator System (ILS) servers to find the people you want to talk to.

At its heart, CU-SeeMe isn't an Internet phone program. It was originally designed for group video conferencing. Still, it can be used for transmitting audio and video to individuals or groups, so you could easily use it for Internet phone calls.

Both image and sound quality are excellent, although it suffers badly if you try to watch and listen to several streams on a normal modem connection. You get a good level of control though – you can set limits on how much data you send and receive, and choose a preset level to suit the speed of your connection.

CU-SeeMe also has a number of collaboration and whiteboard tools, so you can share applications or sketch ideas on a shared whiteboard as you're talking.

You can connect to people either directly with their IP address or through an ILS server. White Pine also offers a service where you can rent time on a private reflector (a computer that co-ordinates conferences with more than two people participating) if you want to host an online meeting.

If you're familiar with older versions of CU-SeeMe, you'll barely recognise this one. It's been completely revamped, but that isn't necessarily a good thing. The new version isn't as easy to get to grips with as the old one, and if you want to find any of the White Pine chat rooms, you'll have to register at White Pine's CU-SeeMe World Web site (at www.cuseemeworld.com) or hunt down the address yourself.

CU-SeeMe is probably the most widely used Internet conferencing program, mainly because it's been around the longest. It used to be the the only horse in town if you wanted to try Internet conferencing. But newer programs, such as NetMeeting, and standards like H.323, give you a lot more choice, and CU-SeeMe doesn't stand up so well against many of these newcomers.

You can still get hold of Cornell University's free version of CU-SeeMe from http://cu-seeme.cornell.edu. It's not as advanced as the latest version of this software (it doesn't send colour video, for instance), but it works and it won't cost you anything.

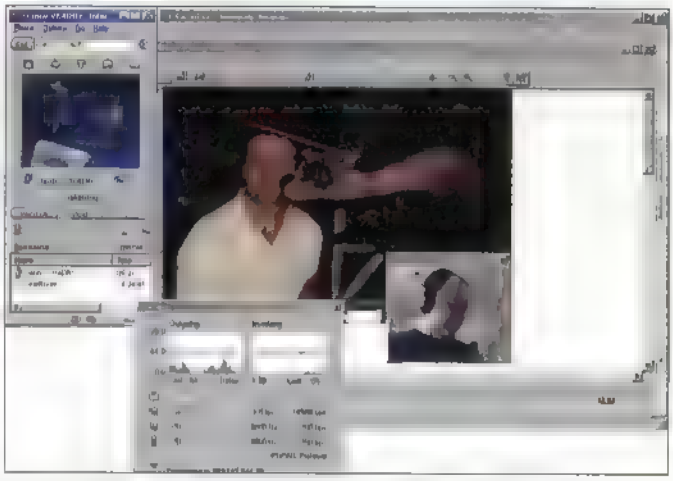
There's also a demo of an earlier version of White Pine's CU-SeeMe, but there isn't a demo of CU-SeeMe Pro version 4.

★★★

CU-SeeMe Pro (v4)
Price *$69 (around £41)*
Pros *Good sound and video quality*
Cons *Interface is rather confusing, help files don't help much.*
Contact *White Pine software*
Phone *(001 603) 886 9050*
www.wpine.com

VOCALTEC

Internet Phone



It's worth downloading the free version of Internet Phone before committing to it

A veteran program that does the job, but needs to do more to tempt you

VocalTec's Internet Phone has been on the Internet phone market for a while – the first version came out in 1995. It's now up to version 5, and this new release has plenty of features, including video, whiteboard and audio conferencing features.

The program looks more complex than NetMeeting, but it's simple to use. VocalTec doesn't support ILS, but it does have its own directory service with built-in software to access it. You can find other Internet phone users by entering their email address and letting the program search the directory. VocalTec hosts several rooms where you can meet people and a number of conferences where several people can get together to chat. The multi-user conference option is limited, though, since only one person can talk at a time.

The sound quality of Internet Phone (as with many of the other programs on test) is good, but it does depend on the speed of your connection. On test, the quality was good with a 56k modem and acceptable at 28 8k. You can send video using a slower modem, but it's not recommended – I'd suggest a 56k modem at least. You can send photos over the built-in whiteboard, so you can share family photos with friends and relations around the globe

The Internet Phone is also designed for making calls over a gateway connecting the Internet to the normal phone network. This isn't surprising since VocalTec's main business is making and selling these gateway devices. It also provides a free Lite version of Internet Phone (available from the VocalTec Web site), which is designed purely for making calls using these gateways, but you can't use it to make calls from one PC to another.

VocalTec doesn't provide a PC to phone service, but it has a list of ISPs that use its equipment (at www.gold.VocalTec.com/iphone5/services/telephony.htm), so you can find a service in the country you want to call, such as the UK telephone company Delta Three (at www.deltathree.com). The quality of these calls was good, although there were occasional dropouts (brief silences caused by the data not getting through in time).

VocalTec's Internet Phone is a nice program, but there's not much here that makes it worth paying for when you can get NetMeeting for free.

The sound and video quality is about the same as NetMeeting, as are the features. VocalTec doesn't support ILS servers, so this could cause problems, although its own directory service seems to work well enough.

The only real advantage to the VocalTec Internet Phone is that it can make calls to PCs and normal phone users (through a gateway)

But don't forget you can also get a free program that can make calls through gateways, and that the Net2Phone software is free as well.

★★★★

Internet Phone
Price *$45 (around £27)*
Pros *Good sound quality, can use PC to phone gateway*
Cons *No ILS or directory support other than Vocaltec's own*
Contact *VocalTec*
Phone *(01252) 783 500*
www.vocaltec.com

MEDIARING

MediaRing Talk

The software is easy to use, but the ringing might drive your family mad

Makes high quality Internet calls without a Net connection. No, really, it does...

MediaRing Talk takes a slightly different approach to making internet phone calls. Instead of using a directory to check where people are, it uses the existing phone network.

You enter the telephone number of the person you want to call and the program dials that number three times, letting the phone ring once each time (MediaRing calls this knocking).

The MediaRing software running on the recipient's computer notices this knock, goes online and tries to connect to the person calling over the Internet.

It all sounds a bit bizarre, but it seems to work. The only problem is you have to put up with your phone ringing three times and waiting for the connection to be made before you can talk. This process can often take up to two minutes to complete, which is a little longer than most people are comfortable with.

One nice feature is if you decide not to answer an incoming call, the system will take a message that you can retrieve later on. Other Internet phone systems would do well to look at this feature – the ability to retrieve messages later makes life much easier.

The program also lets you record messages, compress them and send them by email (MediaTalk calls this VoizMail), which is a nice touch.

The sound quality is good, with a small number of dropouts or other problems. Again, a 56k connection is recommended, but the quality was acceptable on a 28.8k connection. There's no support for video, ILS or finding people online though – you have to know their phone number to connect, but this could be a good thing for most people. It'll discourage people who are just playing around from calling you all the time.

The software also looks good and is easy to use, despite the prominent advertising on the main screen, which is rather irritating. But the advertising means the software is free – there's no time-based charges or monthly subscription charges.

There's some good help features with this program, including a file that pops up whenever you make a call to explain the process. This is a nice idea, but the execution of the connection system leaves something to be desired. It takes too long to connect and the phone ringing three times is likely to drive other people in your house mad after a while. If anyone answers the phone, it will cancel the whole process and you'll have to start again.

Having said this, MediaRing is developing a system that uses a gateway to make calls over the normal phone network (called ValueFone), so it's worth keeping an eye out for when this becomes available.

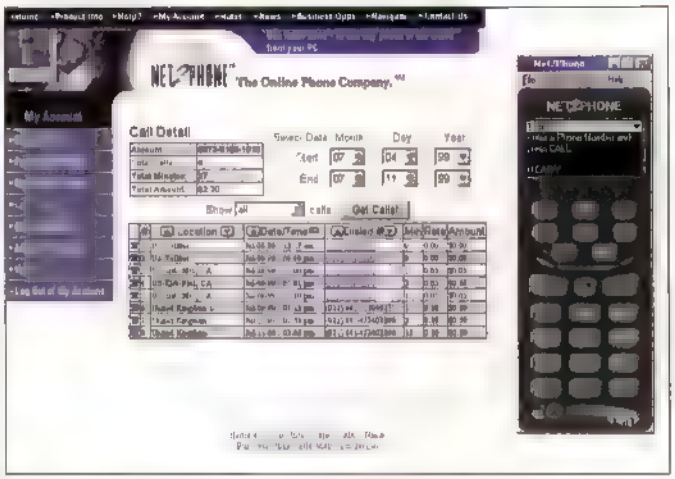
This will work in a similar way to Net2Phone, and the prices being quoted on the MediaPhone Web site look pretty much the same.

★★★☆☆

MediaRing Talk
Price *Free*
Pros *Good sound quality, easy to use software*
Cons *Connection system is clumsy and long-winded*
Contact *MediaRing*
Phone *(001408) 441 0382*
www.mediaring.com

IDT CORPORATION

Net2Phone



If you don't mind the occasional sound problems, you'll save money with Net2Phone

Integrated with the normal phone network for cheap international calls

Net2Phone is a combination of software and an online service. It lets you make domestic and international calls from a PC to any telephone in the world. It works in the same way as we described in the intro to this labs test – a gateway takes the data from the Internet part of the call and sends it over the normal phone network, and vice versa.

You download the software, set up an account with Net2Phone and charge the account with your credit card. You can then make calls by entering the phone number into the software.

The only minor niggle is Net2Phone is based in the US, so you have to put the US dialling prefixes in front of all of your numbers, so if you wanted to call the Internet Magazine offices, you would dial 011 44 171 880 7441.

But the positive side of this is it doesn't matter where you're calling from – most of the call data is sent over the Internet, so you can call from anywhere you can get Internet access for the same call rate.

It also means you can call the 1-800 numbers that many US companies use (rather like 0800 freephone numbers in the UK) for free – you don't have to pay anything to call them using Net2Phone from anywhere in the world. You can also program up to 100 numbers into the SpeedDial facility, and you can dial these with a couple of mouse clicks.

Sending most of the data over the Internet means it's usually cheaper to make calls using Net2Phone than over a normal phone line. The company claims you can reduce your telephone bill by saving money on the cost of traditional long-distance calls. Calls to the US, for instance, cost about 10 cents (that's around 6p) a minute over Net2Phone, but over £1 a minute at BT's rates. There are discounts available with BT, but Net2Phone is still much cheaper than most of the international call rates we've seen.

The sound quality of the calls tends to vary, but it's usually pretty good. Net2Phone says the calls are in real-time, uninterrupted and with full duplex voice communication. But you'll need at least a 28.8k connection, and a poor quality Internet connection can lead to distorted sound. This didn't seem to happen very often, though.

One person I called described it as sounding rather like a transatlantic call made 10 or 15 years ago, with an occasional loss of sound and a delay that was longer than you would expect from a modern long distance call. But, considering it's much cheaper than normal calls, this is something you could live with, and you soon get used to the delay.

Net2Phone is also developing a system where you can make a call over the Internet using a normal phone line by dialling into its service. This is currently available in the US, but hasn't yet been released in Europe.

★★★★☆

Net2Phone
Price *Software is free – calls cost around 6p a minute*
Pros *Low cost calls, no need for the recipient to have a PC*
Cons *Occasional sound quality problems*
Contact *IDT Corporation*
Phone *(001201) 928 2990*
www.net2phone.com

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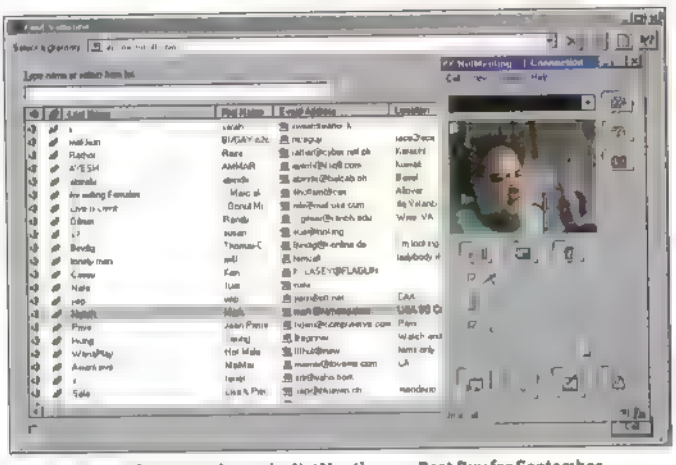
MICROSOFT

NetMeeting



Good quality and a great price make NetMeeting our Best Buy for September

Microsoft's Internet phone software is packed with features and it's free

Never one to miss out on a trend when it spots one, Microsoft came out with the first version of NetMeeting in 1996 and bundled it with Internet Explorer.

NetMeeting, like Explorer, is completely free to download and is packed with features. As well as audio, it can send video, and lets you collaborate with other users – several people can work with a program running on one computer. NetMeeting helps you find people to talk to by using ILS servers, as well as calling direct to IP addresses.

The latest release of NetMeeting (version 3) has undergone a revamp. Older versions opened a large window that used a lot of space, but version 3 goes for a minimalist approach. It opens one small window showing the video frame and a couple of buttons.

Older versions took you straight to a directory listing, but now, if you want to find someone, you have to log onto an ILS server and search in a separate window. This gives you a less crowded desktop, and it's generally an improvement.

There are also some nice touches, such as a Picture in Picture setting, which presents a small version of the video you're sending in the bottom right corner of the frame. This shows you what the video you're sending looks like without you having to open another window.

NetMeeting also comes with an audio tuning wizard that helps you set the volume levels for sending and receiving audio, but you might need to spend some time experimenting before you get the settings right.

This new interface works pretty well, and the audio and video quality of this software is excellent. As with the other programs on test, the quality is dependent on the type of Internet connection you're using. NetMeeting comes with a variety of codecs designed for slower and faster connections.

It's also possible for one person to send audio and video while the person they're talking to just sends audio. This means you don't need a camera at both ends to have a conversation with video.

You can host video conferences (which Microsoft refers to as meetings), but your options are limited here – you can only listen to one person at a time, although several people can share applications or talk in the text chat screen.

Getting several people together so they can all see each other requires a server that can co-ordinate the different video streams. White Pine produces software called MeetingPoint that can do this for you, or you can rent time on systems such as Road Runner (at www.rr.com)

NetMeeting is an excellent general purpose program. Its new, slimmed down interface is a distinct improvement on previous versions. The audio quality is also excellent and the range of codecs is useful. It's not even a big download, which is unusual for Microsoft – the full program is only 1.5Mb.

★★★★★

NetMeeting
Price *Free*
Pros *Good sound and video quality, easy to use*
Cons *Limited support for conferencing*
Contact *Microsoft*
Phone *(0345) 002 000*
www.microsoft.com/netmeeting

Internet phones compared

Product	Manufacturer	Cost	Platforms	Free trial	ILS support	OS	Supported add-ons	Support				
NetMeeting	Microsoft	Free	Wgx NT	✔	✔	Web based	✔	✔	✔	✔	✔	✔	★★★★★
Internet Phone	VocalTech	£35	Wgx NT Mac	✔	✘	Own service	✔	✔	✔	✔	✔	✔	★★★★
Net2Phone	IDT Corporation	Free**	Wgx NT Mac	✔	✘	✘	✘	✔	✔	✘	✘	✔	★★★★
MediaRing Talk	MediaRing	Free	Wgx NT	✔	✘	✘	✘	✔	Soon	✘	✘	✘	★★★
CU-SeeMe	White Pine	£45	Wgx NT Mac	✘	✔	Own service	✔	✔	✘	✔	✔	✔	★★★
Aplio Phone	Aplio	£444	N/A	✘***	✘	✘	✘	✘	✘	✘	✘	✘	★★★★

* Incoming calls only – the Aplio cannot call other H.323 programs, but other programs can connect to the Aplio
** Calls cost from 6p a minute
*** The Aplio is a hardware product, so there's no downloadable demo version

Conclusions

It's clear from this labs test that Internet telephony products need to improve before they can threaten the existing phone network. None of the programs we looked at could match the quality of a modern phone line, but they've certainly developed over the past few years.

The availability of high bandwidth connections, such as DSL lines, will help the development of this technology, as the quality of calls is determined by how much bandwidth is available. It won't be long before you can get products which are as good as normal phone lines and much cheaper.

Microsoft's NetMeeting was the best Internet phone product tested. It does the job of sending and receiving audio extremely well, and it's free to download. The revamp has also been successful, making it simpler to use.

The Aplio Phone does an excellent job of making calls over the Internet, but it doesn't have any video or conferencing features. VocalTec's Internet Phone is a good product, but it's no better than NetMeeting, which you don't have to pay for

Net2Phone gets an honourable mention for providing an easy to use PC to phone gateway service that shows why the telecoms companies are either running scared or embracing Internet telephony.

CU-SeeMe is not too far behind with good sound and video quality, but it's not as easy to use as NetMeeting. MediaRing Talk looks good and has plenty of good ideas, but the process of making Internet phone calls is clumsy.

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3rd	Demon	440
7	Netbenefit	274
35	Corpex	78
65	RapidSite	20

0 100 200 300 400 500

Source Zeus Technologies. 2 April 1999
Survey of 72 firms (not all shown)

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- Our market-leading name search is even FREE.

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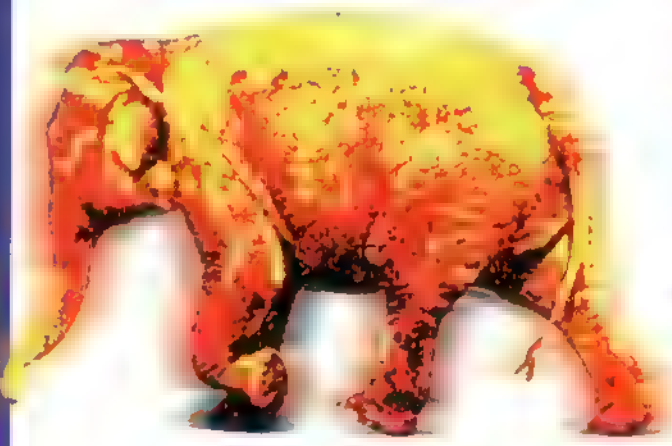

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Don't forget, apply now and take advantage of this BIG offer

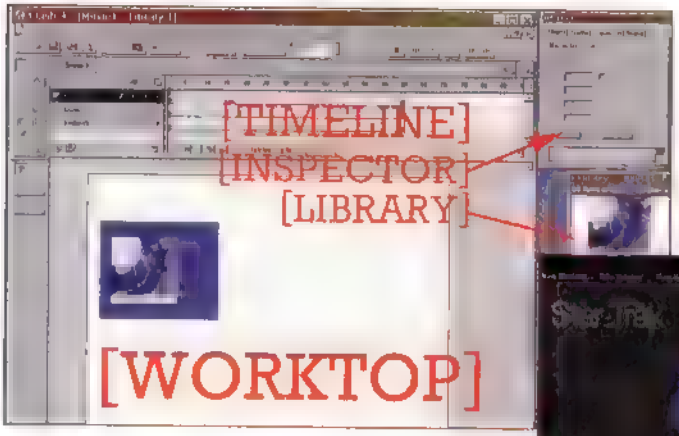
New Products September

This month's selection includes a multimedia camera and portable MP3 player for gadget fans, a site builder and tools to add music and 3D to your Web pages

WEB ANIMATION SOFTWARE

Flash 4

A variety of new features makes this classic program a pleasure to use



Left: The timeline is tidier in Flash 4 and the introduction of an Inspector palette means you can achieve more without using the pull-down menus

Below: Have a look at Atom's film site (at www.atomfilms.com). It's an excellent example of how Flash can bring life to your Web pages

Flash is the industry standard in design houses around the world for publishing interactive, animated presentations on the Internet. From simple moving pictures to server-side graphical database interaction, this program has changed the way design works on the Web.

Now in its fourth incarnation, the program's settled into a reliable and recognisable format. The traditional tools have been fine-tuned, and its additional functions have absorbed new developments, such as MP3 audio technology. The screen format now includes an Inspector palette, which makes the program more user-friendly and similar to other Macromedia products.

Animated action

Flash works by placing sequences of images along a timeline. These sequences are similar to the way acetates were traditionally used in cartoon production. When viewed in sequence at high speed, the characters on the acetate appear to move or change.

Flash takes much of the effort out of this process using a technique called tweening. You define the location of an object on the worktop at frame Tx of the timeline, followed by the location of the object at frame Ty.

At your command, Flash will calculate the position (or shape) of the object for each frame of the timeline between Tx and Ty. This is sufficient for most motion and transformation requirements, but if you don't mind making your animation files larger, you can construct the images for each frame by hand as you go along.

To give you control over the moving graphics sequences in your animation, the program employs layers – a common concept found in other design packages, such as Illustrator and Photoshop. It lets you keep your animation sequences on individual layers, thus avoiding confusion when you're trying to make alterations.

When you're editing a graphic on the worktop, the timeline is automatically highlighted, which is a significant improvement in Flash 4.

Integrated links

Another great feature of Flash is its interactivity – you can program links into the animation itself. With the click of a mouse button, you can send people anywhere you want them to go. This includes button mouseovers, which you can create in seconds without having to learn any JavaScript.

You build the three states of the button (normal, over and down) as frames in the timeline, along with a fourth frame that defines the mouseover zone. The links can be internal or external to the current Web page. Alternatively, you can send your visitors to another set of layers within the Flash animation.

This is the key area of development in Flash 4 and, significantly, many more JavaScript and HTML functions have been included in the new release. For the first time, there's serious potential for completing most, if not all, of your Web design in Flash. You can also include editable text fields, which sit within your movie ready to collect data, such as passwords and surveys.

New additions

There were already plenty of actions available in earlier editions of Flash. But the extended list of interactive options now includes slider controls, menus and radio buttons.

The graphics you use in the program can be designed within Flash using a comprehensive suite of tools, or imported from another program. Sound is managed in the same way – you can import sound files into the file library. Once imported, you can insert the sample into your layers as a one-off sequence or running between two distinct key frames.

The MP3 audio format has also been integrated into Flash 4. You can export your finished movie using MP3 compression and control pre-processing, bit rate and the quality of output. This could be a turning point for media applications on the Internet, as it'll provide Web designers with a serious opportunity for producing Web-specific music videos.

When it comes to exporting your movie, you'll find the new Publish command helpful. It lets you preview your movie through the browser and produces an HTML file that you can insert into your site. The code can also include a static image – a chosen frame from your movie – for display on machines lacking the Shockwave or QuickTime plug-ins. QuickTime 4 supports Flash 4 movies and you can download it from Apple's Web site (at www.apple.com/quicktime)

Help is at hand

For beginners, the Flash 4 tutorials are excellent. They help you to understand the potential of the program, using logical methods that'll help you appreciate the program's philosophy.

Flash 4's new tutorials are a vast improvement on those included in previous versions. They'll take you through everything from producing buttons to moving objects along motion paths. You can access the manual through your browser and link to the Macromedia Web site for updates and tips.

Flash became the industry standard for Web designers with the release of version 3. But Flash 4 is capable of even more, and it's a pleasure to use.

Charlie Young

★★★★★

Flash 4

Price *$299 (around £197)*
Pros *A package for the masses – powerful yet easy to use*
Cons *The timeline concept takes a while to get used to*
Contact *Software Warehouse*
Phone *(0800) 0355 355*
www.macromedia.com

PERSONAL MP3 PLAYER

D'music MP3 Player

Small, easy to use personal MP3 player with voice recording

The D'music can't skip or jump while it's playing because it doesn't have any moving parts

Sony, JVC and Panasonic are household names for personal hi-fi users, but they're conspicuous by their absence when it comes to MP3 compressed music players. The legal arguments that are raging over breach of copyright are holding the big guns back.

But companies that have been making computer soundcards and working with digital soundfiles for the last few years have been less reticent. Pine Technology makes computer components and sells three million soundcards a year. Its personal MP3 player – the D'music – is made in Korea and sells for £135 in the UK.

It's against the law to download illegally copied music from the Internet. But let's consider the machine as a legal way to carry around digital copies of your own music for personal use.

D'music comes with a copy of Music Match Jukebox, a useful piece of software that converts CD tracks to the compressed MP3 format. You can use it to make copies of your favourite songs from your CDs

The D'music software has a clear interface for managing the transfer of MP3 files from your hard disk to the player. Transfer times are slow, though – around two minutes for a typical 4Mb song. But the company says a new connecting lead is being developed to reduce the time to around 30 seconds. You'll soon be able to exchange it for your old lead free of charge.

The D'music can upload files to a PC, so the player is a handy digital storage device – I used it to hold image files as well as music. The 32Mb of memory is enough for seven or eight songs, but you can increase its capacity with Flash memory cards that slot into the body of the player.

The D'music's body (63 x 85 x 17.5mm) has a central control pad for the main functions – play, pause, skip forward, back and stop. Separate metal buttons on the front and side select different modes and adjust the volume.

You get various repeat functions and an equaliser feature, which lets you set different bass and treble levels to suit all tastes and types of music. But it's let down by the poor earphones – they don't do justice to the quality of an MP3 music file.

One feature that sets the D'music apart is its voice recording facility – it can store over two hours of audio notes. A tiny microphone sits beside the LCD display panel and its signal is used to create VOC files.

Getting the VOC files onto your PC isn't a straightforward process. But you'll soon be able to download software updates from Pine International's Web site, which will hopefully improve this process.

Martyn Moore

★★★★

D'music MP3 player

Price *£135 including VAT*
Pros *Small, easy to use, voice recording, upload facility*
Cons *Low quality earphones, tricky process of converting VOC files*
Contact *Pine Technology UK*
Phone *(01908) 218 812*
www.pinegroup.com

MUSIC ENCODER/PLAYER

RealJukebox

Sort out music for your Web site with this encoder and player

RealJukebox is a change of direction for Real Networks. The company has previously specialised in streaming media, where music or video is delivered over the Internet. But it's planning to branch out into music on your hard disk with its new RealSystem MP architecture.

At its centre is RealJukebox, a program for creating and playing back music files. The program supports two formats for compressed music – RealAudio and MP3.

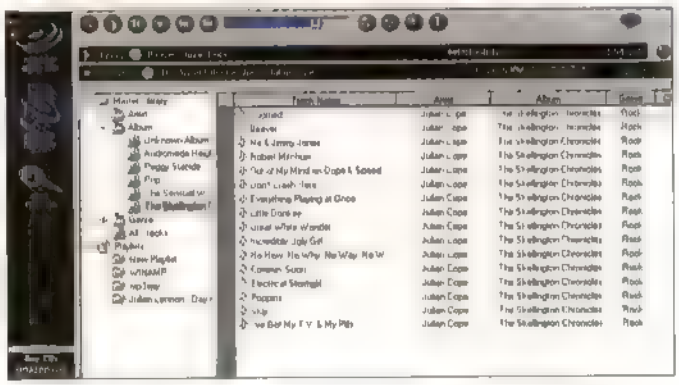
You can encode your music at different quality levels. The best quality MP3 format compresses a 74-minute CD to 4Mb.

titles from the CDDB system (at **www.cddb.com**). The encoding process requires a fast PC – a Pentium III 450Hz with a fast CD-ROM drive can encode a 70-minute CD in about nine minutes.

But as with most MP3 players, the music can be interrupted if the computer is doing something else. If you're playing back an encoded album and you launch another program, for instance, the music either stops or goes into a weird loop for a few seconds – it temporarily stops reading the MP3 data from the hard disk.

This happened more with RealJukebox than other MP3 players, such as Winamp (at **www.winamp.com**), where you only get occasional interruptions.

The review copy of RealJukebox was a beta test version and it seemed extremely stable, but it could still crash and do nasty things to your computer.



RealJukebox lets you choose between two views – a large, Explorer-type window (above) and a smaller, CD player-style interface (top)

In a concession to the concerns of the record industry, the encoded files can be tagged for security purposes so they can only be played on the PC they were encoded on. This also means they can't be used on portable MP3 devices.

You can turn this security tagging off, though. Real warns you it can't be held responsible for any breach of copyright you commit.

Put your CD in your CD-ROM drive and RealJukebox will automatically start encoding it. If your machine is powerful enough, it'll then play the encoded file, which is a nice touch.

If you have a permanent Internet connection, the program can also retrieve album and individual track

Despite these minor niggles, it's still an excellent program that makes the process of encoding your CDs much easier. Real Networks will no doubt fix most of the problems by the final version.

Richard Baguley

★★★★

RealJukebox

Price *Free*
Pros *Excellent user interface and sound quality speed*
Cons *Occasional glitches, still in beta version*
Contact *Real Networks*
Phone *(01932) 581 000*
www.real.co.uk

LOGFILE ANALYSIS PROGRAM

WebSpy 2.5

This program lets you analyse every byte and minute of your employee's browsing

Most large organisations use a caching proxy server between their staff and the Internet. This server caches a page when it's requested from the Net. The next time you load the page, it appears almost instantly from the cache – which increases the speed of your Web access, reduces your connection costs and even improves security.

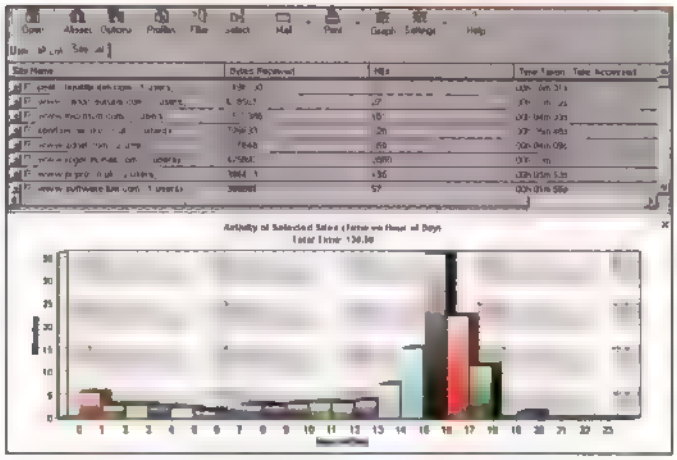
Proxy servers are well placed to keep track of Web usage, and they can maintain comprehensive usage logs. As you can imagine, these often reveal some fascinating usage statistics when they're analysed, particularly about non-productive browsing during working hours.

Most proxy logfiles are stored in a common export format, such as CSV, which makes it easy to import them into spreadsheets and databases. But analysing this data hasn't been easy – until now.

WebSpy was developed specifically to analyse proxy logs – to reveal usage patterns of browsers and record which sites have been visited. WebSpy can analyse logfiles derived from the Microsoft Proxy Server, Netscape Proxy Server, Novell BorderManager, WinGate, WebSweeper and Squid.

Using the Microsoft Proxy Server on a Windows NT Server 4 box, it was easy to import the logfiles into WebSpy. The data can be broken down by browser and site viewer – you also get data on the amount of time spent on a page and information on downloads.

You can categorise sites – such as computer-related sites or sites containing adult material – and produce reports for individual workstations, showing which categories they accessed and the total time spent browsing those categories – sobering stuff, eh?



Big brother is watching you – WebSpy lets companies analyse their staff's Web use

You can also print reports in tabular format or as bar graphs, showing the time spent browsing a category over the past 24 hours.

You won't save a fortune in call costs since most staff have fixed links to the Net. But connections will be more efficient, releasing wasted bandwidth in the process.

The biggest savings will be in staff efficiency – once they know their browsing can be analysed, they'll soon be on the straight and narrow. Even in a small company, the price of WebSpy should be recovered within a matter of days through increased productivity.

Roger Gann

★★★★

WebSpy 2.5

Price *£300 + VAT*
Pros *Easy to use, good reporting*
Cons *Can't export data from reports*
Contact *Webman Technology*
Phone *(0171) 821 0997*
www.webmantech.co.uk

c&www.bonkers!

If you're looking to spend time in the crazy world of the web, here's a sane place to start. Unlike many 'free' services, our new Connect service gives you free Internet calls – so there are no nasty surprises when your phone bill arrives. Our simple packages start at just £5 99 a month, and if you're really mad for it, Connect75 offers you unlimited Internet access with up to **75 hours of free Internet calls** for just £29.99 a month. All our Connect packages include everything you'd expect from your service provider: including 5 email addresses and 20Mb of free web space. You'll also make great savings on the rest of your phone bill – compared to BT – or we'll give you back double the difference.* Either we're mad to do it – or you'd be mad not to.

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What can we do for you?™
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CABLE & WIRELESS

3D GRAPHICS CREATOR

Canoma

Canoma lets you turn your own photographs into 3D graphics for the Web

This innovative software lets you create great 3D graphics for your site

A lot of people who build sites have been waiting for software that would make creating 3D graphics a practical reality. And now the waiting's over.

Canoma lets you take your photographs of a real object and 'glue' them together to make a 3D model. You can then export the model in various 3D formats suitable for the Web, or take a flight through your model and save the journey as a QuickTime movie.

You start by photographing your subject from different angles. You'll need four or five pictures from a distance and at least the same number of close-ups.

Once you've scanned these into your computer or downloaded them from your digital camera, you select one of the images and bring it into the Canoma project window.

You draw a framework of lines within the subject. The software offers boxes, pyramids and other regular shapes for this framework, which is called a wireframe.

You then attach the corners of the wireframe attach them to the corners of your chose object. Rotate your wireframe to the camera angle for your next photo, and introduce that photo to the project window. The match isn't always perfect, so you need to stretch the wireframe until it fits the new photo properly.

Once you're happy with the fit, Canoma 'glues' the new photo information on to the wireframe model. After you've repeated the process a few times, you finish up with a decent model that's complete from all angles.

You can then use your close-up images to add texture to the surfaces. The standard of the results are high – far higher than you'd expect for the small amount of work the program asks of you.

We ran Canoma on a Pentium 330MHz, with 64Mb of RAM. But some of the detailed renderings still took more than a minute – up to five minutes for really detailed stuff.

Canoma is excellent at producing images of flat-faced objects, such as buildings and boxes, but it has a hard time dealing with curves. This means natural objects, such as people and trees, are difficult to include in your model.

But it's still an impressive program with a superb interface. This software could be the start of a 3D revolution on the Web.

Andrew Starling

★★★★★

Canoma

Price *£399 (£299 to download)*
Pros *Easy to use, great interface*
Cons *Can't use animate subjects*
Contact *Computers Unlimited*
Phone *(0181) 358 5857*
www.metacreations.com

MULTIMEDIA CAMERA

Cybershot DSC-F55E

A multimedia camera that lets you add pictures, sounds and movies to your site

Sony's Cybershot DSC-F55E lets you produce high quality still images and record short MPEG video and sound files that are perfect for uploading to your Web site or using as email attachments.

The camera is a fraction of the size of the pocket-ripping Mavica range, thanks to Sony's non-proprietary memory storage device, the diminutive Memory Stick.

A 16Mb stick (£120) lets you store up to 40 JPEGs at the camera's highest resolution (1600 x 1200 pixels at 24 bit) or record a 10.5 minute, 160 x 112 pixel MPEG movie.

The compact Cybershot camera uses Sony's new Memory Stick technology

The camera has a nifty rotating lens and flash that's useful for tricky camera angles and self portraits. Unfortunately, there's no optical viewfinder, but the innovative LCD screen works well. It combines transmissive and reflective technology and can operate without the backlight to save battery life. Sony claims you can take a mighty 1,000 shots on one charge.

The Cybershot comes with an excellent Carl Zeiss lens, which produced some of the sharpest pictures I've seen from any digital camera (shown above).

Colour rendition and detail reproduction was excellent, but the lack of a proper optical zoom was disappointing, as was the recharger, which forces you to remove the battery every time.

The intuitive onscreen menu and the straightforward navigation controls made the Sony easy to use. There are enough advanced features to make it more than just a point and shoot product.

Capturing movies is easy – you can set the record time or just keep your finger on the button. The clips can be reviewed on the camera before being saved as MPEG files for uploading to the Web or converting to other Web streaming formats.

Transferring files to your computer isn't so simple. The serial port connector takes an eternity and there's no USB option or floppy disk adapter for the Memory Stick.

If you're in a hurry, you might want to pay extra for the costly PC Card adapter or PC Card/parallel port adapter.

Overall, Web authors will find this an irresistible package. It lets you record and review high resolution photos, Web-quality MPEG movies and even voice memos.

The camera performed well under the most demanding conditions

You can transfer them to your desktop and post them on the Net within minutes. I couldn't resist – I went straight out and bought one

Mike Slocombe

★★★★

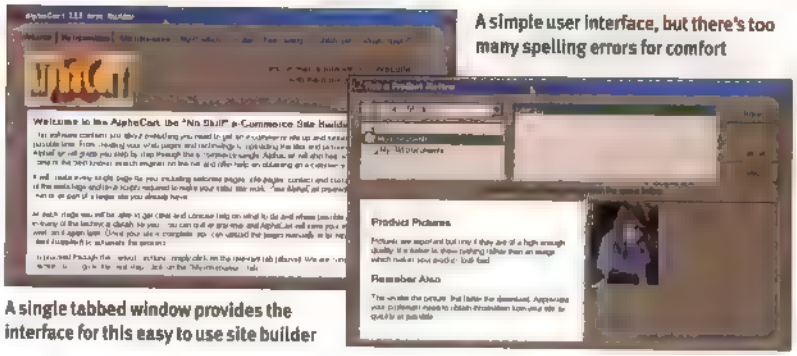
Cybershot DSC-F55E

Price *£690 inc VAT*
Pros *Small, superb image quality, MPEG and sound recording, long battery life, good software*
Cons *No floppy disk adapter, Memory Stick is only 4Mb*
Contact *Sony UK*
Tel *(0990) 111 999*
www.sony.co.uk

WEB SITE GENERATOR

AlphaCart

Build yourself an e-commerce site with this low-cost, easy to use software



A simple user interface, but there's too many spelling errors for comfort

A single tabbed window provides the interface for this easy to use site builder

The growth of e-commerce and online shopping has created a dilemma for many small stores and traders. They want to get online, but they don't want to make a massive investment in hardware, software or programming.

You can get various solutions, such as Yahoo.'s 'build an e-shop while you wait'. But you have to either invest in expensive software or pay a monthly hosting fee.

Many people want to work offline, spend time getting it right and publish their finished product. AlphaCart provides you with a low-cost, workable solution with the minimum amount of fuss.

AlphaCart is a Web site generator for Windows 95/98 – give it some information about your site, enter the details of your products (a maximum of 250) and press Publish. It'll build you either a standalone Web site or just the online store, along with all the JavaScript and forms you need for a shopping basket.

The program will also generate orders and deliver them back to you via email. It won't process payments, though – you'll need to do this yourself.

For a low-price product, AlphaCart is refreshingly simple and delivers what it promises. It has lots of good features, such as the ability to add banner ads from a link exchange system.

The program has details of some of the main low-cost Web hosting services, such as Demon, Freeserve and GeoCities. It can use their standard features (link counters and CGI support) without you having to do anything.

The built-in Catfood FTP client can automatically publish your pages – but you can generate a local copy and upload them yourself.

The range of site templates is limited, but you can tailor your own or commission others, and you can add photos and HTML files that describe your product.

When I tried to insert a 100k HTML document into my catalogue, the program told me it was rather large and advised me to reconsider. If only some of our more respected site developers did the same.

AlphaCart can only build you one site, though. It stores the configuration files in its program directory, so you can't use it to manage multiple shops from one computer, unless you want to install the software several times. But this shouldn't be a problem if you only have one shop to put online.

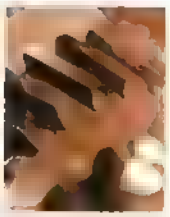
The only problem with the software and Web site is they have lots of typing errors and unwanted apostrophes. But this doesn't affect the usefulness of the product.

Bill Thompson

★★★★

AlphaCart

Price *Shareware, £29.95 to register*
Pros *Simple interface, good functionality*
Cons *Limited site size*
Contact *Faze Internet*
www.faze.com/webcart



e-commerce

secure trading ST

take credit card payments on your website

As the leading provider of Internet credit card processing, ST allows e-commerce websites to accept payment from their customers in real-time. ST operates a resilient network of payment gateways, 2048 bit encryption alongside a unique fraud control system. ST is easy to set up and use and supports all credit/debit cards, currencies (inc. Euro) with direct links to the banks.

- Test-site set up in less than 10 minutes
- Partnership packages for developers and ISPs
- Flexible and scalable systems
- Compatible with most popular shopping carts
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- Use ST's secure server or perl / asp scripts

Secure Trading's advanced security features, fast card authorisation and excellent customer service are exactly what we wanted. ***Geoffrey Newsome, MD Pickabook Limited (www.pickabook.co.uk)***

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01248 672007

info@securetrading.com

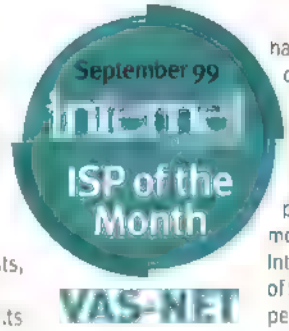
EXCLUSIVE

provider lab

The biggest and best tests // Don't choose an ISP until you've read the results

Find out how the UK's top service providers score in *Internet Magazine's* exclusive ISP lab tests. Every month we put the best ISPs through a rigorous set of performance tests, so check out how yours has scored. And for the most consistent ISP over the past six months, turn to page 128

The winner



New entrant VAS-NET comes into the rankings with a bang, taking top spot in its first month. The company was confident when it applied to join the tests, and it's obvious why when you see its results. DialNet Connect, in second position, has also done well considering it was languishing at the bottom of the table two months ago. Cable & Wireless and Cable & Wireless Internet Lite have both reached the top five – the Lite version has risen 64 places to fifth.

It's a close-fought battle at the top, with less than one tenth of a second separating the top four ISPs. The next five providers are also separated by less than one tenth of a second. The bottom five ISPs are separated by six seconds.

Free ISPs

We tested 12 free ISPs this month and five of them reached the top half of the table. Two of the free services have performed consistently well – UKONLINE has risen four places to 26th and FreeDotNet dropped only one place to 18th this month. Mitsubishi Internet Services is one of September's star performers, rising from 90th place to 21st. LineOne has also improved significantly, rising from 77th place last month to 41st.

Unfortunately, there's a cluster of free services at the bottom of the rankings. New entry Screaming.net has entered with a whimper compared to VAS-NET. The free call ISP is close to the bottom of the table, with decent connection speeds but poor availability. We've used a BT phone line rather than a Localtel (free calls) line to test Screaming.net, because we can't make our test machines switch phone lines for just one provider.

Joining Screaming.net at the bottom of the rankings are ConnectFREE and a third new entrant, FreeUK, which have both suffered from mediocre availability. Abel Internet, which is second from bottom, contacted us to say its dial-up number had been changed. This could explain its recent poor performance.

Good sites to test

There are 20 sites on our test list – six from the UK, 11 from the US and three from Europe. These numbers correspond to the weightings we give the different regions, which ensures the validity of our statistics.

We look for sites that are unlikely to change over the test period. Pages which use CGI scripts or adverts are therefore unsuitable. Government and academic sites are often used because their information and pages are stable. If a site changes in the middle of a test sequence, we ignore the data and don't include it in the results.

Choosing test sites in the UK is a particular problem because the majority of sites are hosted by ISPs and their close associates. It would be unfair to test an ISP on its own sites. We've therefore taken extreme care to choose suitable UK sites, using Traceroute to check the host. We've also chosen sites from different areas of the country. Most are academic sites.

The situation is easier in the US, because there are more hosts and many of them are not closely associated with UK ISPs. We choose sites hosted on the Eastern seaboard, the West Coast and in the heartland of the US.

For our European testing, we choose sites hosted in France, Germany and Scandinavia.

We usually change at least one site every month because the site becomes unsuitable or unreliable. This month, as part of our continuing test improvements, we've changed more than half the sites.

Uppers&downers

I-WAY SOHO

September's biggest riser, moving from almost the bottom of the table (98th place) to the top quarter (24th place). First class US download speeds have helped the ISP to improve its position this month.

MITSUBISHI ELECTRIC INTERNET

Up 69 places to 21st, thanks to better download speeds in all regions and a big improvement in availability, from 95 per cent to 100 per cent.

CABLE & WIRELESS LITE

The free service rises 64 places to fifth, joining its subscription-based sibling, Cable & Wireless Internet, close to the top of the table.

NEWNET

Dragged down 61 places, from 20th place to 81st by poor US download speeds.

ONYX

A big fall of 45 places pulls Onyx down from its excellent 2nd place in August to 47th this month. Mediocre UK connection speeds are to blame for this drop.

The only ISP tests that count

The *Internet Magazine* ISP tests are based on proven scientific testing principles. We make sure we connect to each ISP many times – which means we make thousands of calls.

The results produced by this extensive testing are then processed, resulting in the test analysis and ranking figures you see in these pages. At every stage, the results are checked to make sure they are accurate.

Please remember that these tests are only designed to examine the availability and speed of an ISP – we don't test their prices or technical support. For the lowdown on the complete set of services provided by the top 30 ISPs, get hold of our gigantic ISP of the Year feature from our Faxback service on page 133.

If you're not a
LUCENT VIP ISP Member
you **SHOULD** *be!*

tests

Key: Free | Subscription | Business

This month's best-performing ISPs, as tested in *Internet Magazine*'s labs

This Month	Last Month	ISP Name	Telephone	Availability (%)	Overall average Web speed (seconds)	Average UK Web sites (seconds)	Average US Web sites (seconds)	Average European sites (seconds)
1		VAS NET	(01732) 860 529	100.00	9.54	9.39	8.10	17.95
		D.A. Net Connect	(0800) 881 881	100.00	9.59	9.23	8.34	18.20
		Cable & Wireless Internet	(0800) 092 3013	100.00	9.59	9.58	8.41	16.75
		ProWeb	(0500) 636 343	100.00	9.60	8.86	8.70	17.20
		Cable & Wireless Lite	(0800) 092 3001	100.00	9.71	9.34	8.53	17.93
		J-Net	(01925) 484 444	100.00	9.72	9.31	8.96	15.53
7		REDNET	(01499) 513 333	100.00	9.73	9.24	8.88	16.30
8		Mistral Internet	(0800) 328 7253	100.00	9.78	9.04	8.89	17.32
		[illegible]	[illegible]	99.61	9.79	8.96	9.02	17.63
		[illegible]	[illegible]	100.00	9.86	9.22	8.90	17.34
11	7	Internet UK	(0845) 070 0006	100.00	9.93	9.45	8.62	19.22
		Interactive Web	(01926) 450 099	95.28	9.53	8.99	8.90	14.90
		Global Internet	(0870) 909 8041	100.00	10.04	8.97	8.96	19.73
		CompuServe	(0990) 000 200	100.00	10.13	9.25	9.47	16.76
		Gemsoft	(0114) 275 7070	100.00	10.17	9.36	9.47	16.80
16	12	Internet for Business	(01224) 333 370	98.05	10.01	9.92	9.02	16.19
		ENTANET	(0500) 368 263	96.19	9.84	8.66	9.44	15.81
		FreeDotNet	(0181) 938 3338	97.11	9.94	9.94	8.40	19.17
		JJNet (Pipex Dial)	(0500) 567 000	98.05	10.11	10.15	8.70	18.42
20	13	Internet Central	(01270) 611 000	100.00	10.30	9.83	9.58	16.62
		Mistral Internet Services	[illegible]	[illegible]	[illegible]	[illegible]	9.79	[illegible]
		Cheapnet	(0990) 68 160	100.00	10.39	9.14	9.74	18.09
		Strongnet	(01703) 866 006	100.00	10.49	9.50	9.97	16.54
24	18	Way Solo	(0171) 734 5734	100.00	10.51	10.12	9.08	20.23
		SoftProg NET	(0181) 788 0656	100.00	10.55	10.62	9.51	16.52
26	17	UKONLINE	(0845) 333 4567	98.05	10.35	9.23	9.75	17.30
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		Pinnacle Internet	(01903) 524 999	99.01	10.46	9.62	9.00	21.71
		Computasynx	(01604) 231 437	100.00	10.57	9.26	9.95	18.16
		Uninet Internet Services	(0800) 783 7499	100.00	10.57	10.29	9.01	20.72
		Primex	(01908) 643 597	90.99	9.74	9.09	9.00	16.11
		Datanet	(01252) 810 081	99.01	10.61	10.38	9.44	18.29
		Powernet Internet	(01908) 605 188	99.02	10.63	9.96	9.77	17.75
		Viper-Net	(07050) 345071	100.00	10.78	9.66	9.88	19.56
		Swift Internet	(0845) 606 0210	100.00	10.79	9.69	9.88	19.56
		Inweb	(0845) 606 2014	100.00	10.80	9.56	10.32	17.38
		HiWay	(01635) 573 300	95.28	10.30	9.75	9.47	16.88
		Nildram	(0800) 496 2903	93.45	10.11	9.28	8.77	20.62
		Pavilion Internet	(01273) 607 072	100.00	10.89	9.75	10.17	18.61
		Freedom To Surf	(0181) 881 2111	100.00	10.91	10.61	9.89	17.97
		LineOne	(0906) 302 0100	99.01	10.82	9.39	10.47	17.17
		CommUnity Internet	(01865) 856 000	97.11	10.67	9.32	10.11	18.08
43	28	Cerbernet	(0171) 360 8000	97.08	10.74	10.37	10.13	15.55
		Easynet	(0171) 681 4444	97.08	10.79	9.69	9.88	19.56
		Intonet	(0181) 9419195	100.00	11.12	10.12	10.87	15.65
		Gifford Internet Services	(0117) 939 7722	96.19	10.84	9.63	10.48	16.61
		Onyx	(0345) 715 715	97.11	10.95	10.94	9.62	18.97
48	34	ICM Netserv	(0800) 614 581	100.00	11.28	9.17	10.99	9.37
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.86
		Newbury Internet	(01635) 569 123	98.05	11.16	10.71	10.30	17.67

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This month's best-performing ISPs, as tested in *Internet Magazine*'s labs

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This Month	Last Month	ISP Name	Telephone	Availability (%)	Overall average Web speed (seconds)	Average UK Web sites (seconds)	Average US Web sites (seconds)	Average European sites (seconds)
1	3	Idea Internet services	(01942) 522 333	95.28	10.87	9.92	9.92	19.9
2	2	UKaNet	(0171) 538 0253	96.19	10.98	10.00	10.12	19.03
3	4	Which? Online	(0645) 830 240	99.01	11.33	9.0	11.50	17.24
4	5	Netkonect	(0171) 345 7777	99.01	11.33	9.08	10.69	21.90
5	6	Virgin Net	(0500) 558 800	95.28	10.66	9.27	10.74	41
56	7	The Internet Business	(01232) 424 190	95.28	10.99	10.30	10.28	17.32
6	8	Demon	(0181) 371 1234	97.11	11.29	11.68	9.82	18.97
7	9	AIC-Enianet	(01279) 306 677	90.99	10.61	10.24	9.99	15.42
8	10	Legend Internet	(01274) 743 500	95.28	11.15	9.85	10.41	19.91
60	11	Ace Internet	(0705) 066 7423	97.11	11.41	9.28	10.88	20.98
9	12	Frontier Internet Services	(0171) 536 9090	99.01	11.08	9.54	10.65	24.89
10	13	Freeserve	(0990) 500 049	90.99	10.76	9.82	9.65	20.22
11	14	Direct Net Access	(01232) 201 555	100.00	11.83	11.91	10.64	8.77
12	15	CableNet	(01424) 830 900	96.19	11.39	9.63	10.74	20.59
13	16	BT Internet	(0800) 800 001	94.33	11.21	10.40	9.87	20.14
14	17	Cygnet Internet Services	(0181) 880 4650	94.39	11.35	10.45	10.14	21.33
15	18	WorldWide Web Services	(01784) 898 800	87.82	10.6	10.30	9.70	6.93
16	19	Aviators Network	(0700) 284 2867	93.51	11.37	10.61	10.44	19.39
17	20	Vossnet	(01753) 737 800	100.00	12.19	9.89	11.95	20.46
18	21	DNA Internet Services	(01604) 670 717	94.39	11.59	10.81	10.84	18.43
19	22	Moonlight	(01276) 856 868	94.39	11.03	10.44	11.08	18.51
20	23	Eclipse Networking	(01392) 202 345	95.32	11.76	9.88	11.28	20.87
21	24	Avante Internet	(01283) 545 000	100.00	12.43	9.11	12.85	20.89
22	25	SAQ Internet	(0870) 737 7700	97.11	12.12	9.51	12.63	16.84
23	26	Paradise Internet	(01256) 414 863	100.00	12.16	9.97	12.14	22.37
74	27	London Web Communications	(0800) 026 8306	90.99	11.55	9.31	10.42	25.07
24	28	Free-Online	(0870) 706 0504	79.52	10.20	9.18	9.86	15.26
25	29	BT Click	(0800) 731 7887	97.11	12.47	11.74	11.25	24.92
26	30	Prestel Online	(0990) 223 300	97.11	12.51	12.62	11.45	20.34
27	31	Portland communications	(0181) 942 1115	97.11	12.56	9.89	11.60	26.30
28	32	NewNet	(07000) 639 638	100.00	13.00	9.50	13.88	17.99
29	33	Pipemedia OnLine	(01455) 828 218	100.00	13.02	11.95	11.59	24.83
30	34	Netcom Internet	(0800, 980 9107	95.23	12.45	9.90	11.95	23.12
31	35	EntWeb	(0800) 525 470	82.11	10.86	9.62	9.83	17.81
32	36	Interalpha	(01703) 363 200	88.59	11.73	9.75	11.09	21.56
33	37	Force 9	(0800) 073 7800	80.15	10.67	10.08	9.84	17.41
34	38	Baynet	(01222) 256 401	98.05	13.32	13.60	11.90	21.03
35	39	Telinco Internet Services	(0800) 542 0800	93.51	12.73	12.43	12.22	16.64
36	40	CYBERphile Internet	(01543) 454 840	99.01	13.69	12.68	12.35	24.73
37	41	Enterprise	(01624) 677 666	100.00	13.91	12.73	12.70	24.66
38	42	Cable Internet	(0500) 500 100	86.32	12.35	11.36	11.60	9.78
39	43	WSS Internet Access	(01793) 420 764	98.05	14.04	13.95	11.93	27.00
40	44	TIA NET	(0800) 092 6070	91.81	13.20	11.45	13.21	18.41
41	45	Total connectivity Providers	(01703) 571 300	100.00	14.90	12.78	14.84	21.60
42	46	Discovery	(01203) 364 400	90.99	13.91	12.73	12.70	24.66
43	47	Connect FREE	(0870) 742 1111	87.82	13.81	12.12	13.68	9.67
44	48	FreeUK	(0900) 900 0900	87.71	14.02	14.00	12.74	21.79
45	49	Wave Rider Internet	(0121) 603 3888	91.81	14.90	12.78	14.84	21.60
46	50	Zoo Internet	(0181) 961 7000	98.05	15.95	16.10	13.45	30.57
47	51	Screaming.net (BT line)	(0800) 376 5262	70.92	12.67	13.93	10.63	21.16
48	52	Abel Internet	(0131) 445 5555	96.22	18.56	21.73	15.81	17.06
102	53	Technocom	[illegible]	98.05	[illegible]	23.01	[illegible]	29.21

How the performance tests work

The *Internet Magazine* provider lab tests are designed to give you all the information you need on the speed and availability of Internet Service Providers. Every month, our testing system accesses each of the ISPs on the list many times. Our system repeatedly checks:

- The availability of the ISP. How easy is it to make the connection? How often are all the ISP's modems engaged? If the telecommunications company handling the ISP's incoming calls gets too busy, this reduces the ISP's availability figure in just the same way as engaged modems.
- The speed of the connection. How long do a number of popular Web pages take to download?

We're now testing access speeds to popular Web pages in the UK, US and Europe. The overall average Web speed printed in the table is a weighted average, since most of us are more interested in fast loading for UK and US sites, and less bothered about loading foreign language pages from our cousins in the rest of Europe. If Europe is of special interest to you, ignore the overall average and concentrate on the last column.

To rank the ISPs, we calculate the geometric mean of the availability and average Web performance. A geometric mean gives equal weight to these two figures.

- This month's tests ran over the period 5-20 July 1999.

How the ISPs performed over the past six months

Find out how your service provider has done in our unique chart...

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	Provider	Phone	URL
1	REDNET	[illegible]	www.red.net
2	Mistral Internet	(0800) 328 7253	www.mistral.co.uk.net
	Inweb	[illegible]	www.inweb.net.uk
	Pavilion Internet	(01273) 607 072	www.pavilion.co.uk
	Uninet Internet Services	(0800) 783 7499	www.uninet.co.uk
	J-Net	(01925) 484 444	www.j-net.net
	Pinnacle Internet	(01903) 524 999	www.pncl.co.uk
	Direct Connection	(0800) 072 0000	www.dircon.net
	CompuServe	(0990) 000 200	www.compuserve.co.uk
	Nildram	(0800) 496 2903	www.nildram.net
	NetDirect Internet	(0800) 731 3311	www.netdirect.net.uk
12	Internet for Business	(01224) 333 370	www.ifb.net
	UKONLINE	(0845) 333 4567	www.ukonline.net
	Global Internet	(0870) 909 8041	www.global.net.uk
	Freedom To Surf	(0181) 881 2121	www.freedomtosurf.net
16	Internet Central	(01270) 611 000	www.netcentral.co.uk
	Primex	(01908) 643 597	www.primex.co.uk
	Gemsoft	(0114) 275 7070	www.gemsoft.net
	Mitsubishi Electric Internet	(0800) 226 600	www.menet.net
	CaraNet	(0800) 358 2828	www.cara.net
	Onyx	(0345) 715 715	www.onyxnet.co.uk
	Interactive Web	(01926) 450 099	www.[illegible].net
	Sonnet Internet	(0171) 891 2000	www.sonnet.co.uk
	CableNet	(01424) 830 900	www.cablenet.net
	UKNet (Pipex Dial)	(0500) 567 000	www.uk.uu.net
	Frontier Internet Services	(0171) 536 9090	www.ftech.co.uk
	Total connectivity Providers	(01703) 571 300	www.tcp.co.uk
	FreeDotNet	(0181) 938 3338	www.thefree.net
	CommUnity Internet	(01865) 856 000	www.community.net.uk
	Interalpha	(01703) 363 200	www.interalpha.net
	Gifford Internet Services	(0117) 939 7727	www.gifford.co.uk
34	Cerbernet	(0171) 360 8000	www.cerbernet.net
35	London Web	(0800) 026 8306	www.londonweb.net
	SAQ Internet	(0870) 737 7700	www.saqnet.co.uk
	Prestel Online	(0990) 223 300	www.prestel.co.uk
	SoftProg NET	(0181) 788 0656	www.softprog.net
	Netkonect	(0171) 345 7777	www.netkonect.co.uk
	WorldWide Web Services	(01784) 898 800	www.webs.co.uk
	BT Internet	(0800) 800 001	www.btinternet.com
	Legend Internet	(01274) 743 500	www.legend.co.uk
	Portland communications	(0181) 942 1115	www.portland.co.uk
	Ntonet	(0181) 941 9195	www.ntonet.co.uk

	Provider	Phone	URL
	CYBERphile Internet	(01543) 454 840	www.cyberphile.co.uk
	Netcom Internet	(0800) 980 9107	www.netcom.net.uk
	Vossnet	(01753) 737 800	www.vossnet.co.uk
	NewNet	(07000) 639 638	www.newnet.co.uk/home
	Moonlight	(01276) 856 868	www.moonlight.co.uk
	LineOne	(0906) 302 0100	www.lineone.net
49	Technocom	(01753) 714 200	www.technocom.net
	Aviators Network	(0700) 284 2867	www.aviators.net
	ProWeb	(0500) 636 343	www.proweb.co.uk
	Cable Internet	(0500) 500 100	www.cableinet.co.uk
	H'Way	(01635) 5[illegible]3 300	www.hway.co.uk
	Cygnet Internet Services	(0181) 880 4[illegible]50	www.cygnet.co.uk
	Ideal Internet Services	(01942) 522 333	www.ideal.net.co.uk
	DNA Internet Services	(01604) 670 717	www.dna.net.com
	Newbury Internet	(01635) 569 [illegible]23	www.newbury.net
	Cable & Wireless Internet	(0800) 092 3013	www.cwcom.net
	Computalynx	(01604) 231 437	www.computalynx.co.uk
	Powernet Internet	(01908) 605 188	www.powernet.co.uk
	Abel Internet	(0[illegible]) 445 5555	www.abel.net.uk
	Enterprise	(0[illegible]) 667 666	www.enterprise.net
	Freeserve	(0990) 500 049	www.freeserve.net
	WSS Internet Access	(01793) 420 764	www.WSSoft.co.uk
	BTClick	(0800) 731 7887	www.btclickfree.com
	Datanet	(01252) 810 081	www.datanet.co.uk
	Cable & Wireless Lite	(0800) 092 3001	www.cwcom.net
66	ICM Netserv	(0800) 614 581	www.netserv.net
	Eclipse Networking	(01392) 202 345	www.eclipse.co.uk
	ConnectFREE	(0870) 742 1111	www.connectfree.net
	TIA NET	(0800) 092 6070	www.tianet.com
	I-Way Soho	(0171) 734 5734	www.i-way.co.uk
	DIALNet Connect	(0800) 881 881	www.dialnet.com
	Telinco Internet Services	(0800) 542 0800	www.telinco.co.uk
	Force 9	(0800) 073 7800	www.force9.net
	UK2Net	(0171) 538 0253	www.uk2net.com
	Free-Online	(0870) 706 0504	www.free-online.net
	EntWeb	[illegible]	www.[illegible].co.uk
79	The Internet Business	(01232) 424 [illegible]	www.tibus.net
	Zoo Internet	(0181) 961 7000	www.zoo.co.uk
	Virgin Net	0500) 558 800	www.virgin.net
	Baynet	(01222) 256 401	www.baynet.co.uk
	Which? On-line	(0645) 830 240	www.which.net

Top performers in the past six months

As well as our normal tests, every month we produce a table showing how the ISPs have performed over the last six months. This is created by averaging the monthly results for availability and Web access speed. The table only includes ISPs that have figured in our monthly tables in every one of the past six months.

Some providers aren't included because we only began testing them recently. Others haven't made it because we had problems testing them in at least one of these months. Exclusion from this table simply means that for some reason that ISP wasn't tested for six consecutive months – it's no reflection on the quality of the ISP's service.

The results

This month, 83 providers have qualified for our six-month tests. REDNET once again takes the top spot (for the third time in sixth months), thanks to its consist performance in the monthly tables, where it regularly features in the top 10.

Inweb and Pavilion Internet are also doing consistently well, in third and fourth positions. These are just two of the providers with a 100 per cent availability record for the whole of the last six months.

UKONLINE is the top free provider, climbing 20 places this month to 13th position, with Mitsubishi Electric Internet, which is also free, at 19th place. FreedotNet hasn't done so well this month, dropping 10 places to 28th.

Each month we add new data from the latest monthly tests and drop the data from seven months ago. This often has as much influence on the six-month rankings as the addition of the new data – if not more. That's certainly the case for September, with the biggest movers in the table all benefiting from the expiry of poor results in March 1999.

The ISPs who have benefitted the most are Cerbernet, which moves up 34 places to 32nd, and WorldWide Web, which climbs 27 places to 38th position. But several other ISPs will also be glad to see the back of the March results. These include CableNet, which rises 21 positions to 24th, Interalpha, which moves up 20 places to 30th, and Gemsoft, which climbs 18 places to 18th position.

Last month we mentioned SurfLink, which had been hanging around the bottom of the table for a few months. It seemed likely to improve its standing with better monthly results, but it's now opted out of the ISP market entirely, with most of its clients transferring to Zoo Internet.

This month's wooden spoon award goes to Which? On-line. It's been doing reasonably well in our monthly tests, with results around the middle of the table, but that hasn't been enough to overcome some poor results in the summer. Virgin Net and Baynet are in a similar situation at the bottom of the table.

If you're looking for consistency from your service provider, these are the results to watch.

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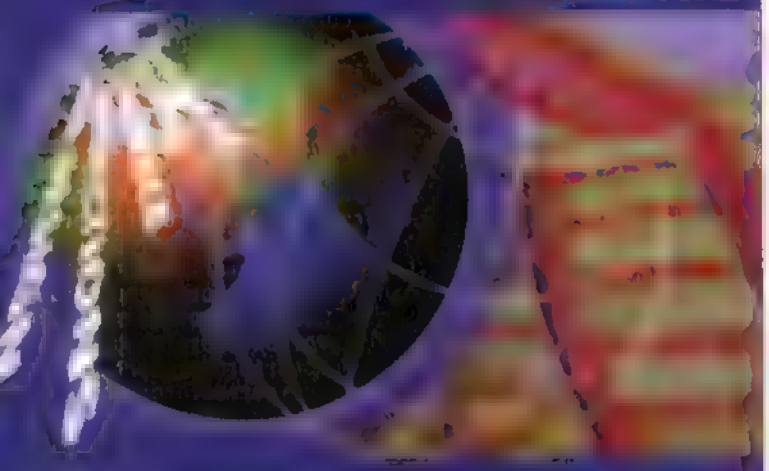

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This month's best performing hosting companies

	Host Name	Host URL	UK Web throughput (Kbps)	Availability
1	[illegible]	[illegible]	46[illegible]	99.55%
2	[illegible] Services	www.frec[illegible].co.uk	442.8	99.38%
3	[illegible] Networks	www.gxn.net	4[illegible]	99.66%
4	[illegible]synet	www.easynet.co.uk	414.25	100.00%
5	[illegible] Internet Network Services	www.pins.co.uk	384.91	99.91%
6	[illegible]	www.demon.net	359.40	99.66%
7	[illegible]	www.netdirect.net.uk	309.66	99.80%
8	[illegible]	www.mildram.net	307.30	99.80%
9	[illegible] Moments	www.directdomains.com	229.35	100.00%
10	[illegible]	www.webworlds.co.uk	214.49	98.55%
11	[illegible]	www.netcom.net.uk	209.47	99.89%
12	[illegible]	www.netbenefit.co.uk	191.42	98.55%
13	[illegible]	www.k-web.co.uk	191.06	97.36%
14	[illegible]	www.newnet.co.uk/home	183.05	99.32%
15	[illegible]	www.dircon.net	181.68	99.66%
16	[illegible]	www.u.k.uu.net	174.59	99.77%
17	[illegible]	www.technocom.net	168.51	99.83%
18	[illegible]	www.entweb.co.uk	160.88	99.38%
19	[illegible]	www.u-net.net	136.35	99.86%
20	[illegible]	www.clara.net	131.59	100.00%
21	[illegible]	www.eggconnect.net	128.59	99.69%
22	[illegible]	www.btwebworld.co.uk	123.63	99.43%
23	[illegible]	www.insnet.net	122.34	99.35%
24	[illegible]	www.totalweb.co.uk	103.31	99.86%
25	[illegible]	www.community.co.uk	96.82	99.01%
26	[illegible]	www.webs.co.uk	96.46	96.53%
27	[illegible]	www.netcentric.co.uk	95.03	98.78%
28	[illegible]	[illegible]	94.[illegible]	[illegible]
29	[illegible]	www.prestel.co.uk	90.99	98.41%
30	[illegible]	www.tecc.co.uk	90.68	99.57%
31	[illegible]	www.ednet.co.uk	90.11	99.40%
32	[illegible]	[illegible]	86.[illegible]	[illegible]
33	[illegible]	www.cygnet.co.uk	79.58	99.74%
34	[illegible]	[illegible]	78.32	99.69
35	[illegible]	www.cocoon.co.uk	78.30	99.94%
36	[illegible]	[illegible]	76.52	99.94
37	[illegible]	www.hiway.co.uk	73.01	99.80%
38	[illegible]	[illegible]	71.[illegible]	[illegible]
39	[illegible]	www.scotland.net	71.94	98.30%
40	[illegible]	[illegible]	71.51	[illegible]
41	[illegible]	[illegible]	66.44	99.[illegible]
42	[illegible]	[illegible]	64.[illegible]	99.35%
43	[illegible]	[illegible]	64.[illegible]	99.49%
44	Atlas Internet	www.atlas.net.uk	63.83	98.72%

	Host Name	Host URL	UK Web throughput (Kbps)	Availability
45	[illegible]	www.[illegible]way.net.uk	61.[illegible]7	99.74%
46	[illegible] Networks EMNET	www.emne[illegible].co.uk	60.31	99.35%
47	[illegible]	www.data.net.uk	59.95	98.15%
48	[illegible]	www.[illegible]synet.co.uk	57.38	99.52%
49	[illegible] Services	www.chains.net	56.[illegible]	99.74%
50	[illegible] World	www.serve-world.net	56.34	99.55%
51	[illegible]	www.[illegible]serve.co.uk	54.63	99.74%
52	[illegible]	www.fb.net	54.36	99.86%
53	[illegible]	www.corpex.com	52.67	99.91%
54	[illegible]	www.u.k.psi.net	50.83	99.72%
55	[illegible]	www.netcentral.co.uk	50.59	98.21%
56	[illegible]	www.zoo.co.uk	50.15	99.97%
57	[illegible]	www.telinco.net	49.89	99.60%
58	[illegible]	www.myratech.co.uk	46.46	99.80%
59	[illegible]	www.red.net	46.15	99.60%
60	[illegible]	www.softopt.co.uk	44.86	98.86%
61	[illegible]	www.enta.net	44.57	99.74%
62	[illegible]	www.plug-in.co.uk	38.49	99.37%
63	Reeds Web Hosting	www.reedsweb.net	37.95	99.22%
64	Netcetera	www.inetc.net	37.88	99.35%
65	AIC-Entanet	www.aic.co.uk/entanet	37.67	99.91%
66	Metronet	www.metronet.co.uk	36.94	98.10%
67	The Web Factory	www.webfactory.co.uk	33.66	96.56%
68	Abel Internet	www.abel.net.uk	31.75	92.64%
69	Legend Internet	www.legend.co.uk	31.03	99.77%
70	LDS Technology Ltd	www.lds.co.uk	30.35	85.86%
71	ISI Solution Internet	www.isi-solution.net	29.27	89.26%
72	[illegible]	www.[illegible]ne	27.69	[illegible]
73	Quza	www.quza.com	26.51	99.80%
74	UKIP	www.ukip.co.uk	25.93	99.57%
75	Calligrafix	www.calligrafix.co.uk	22.23	99.49%
76	[illegible]	www.sharedknowledge[illegible]	20.55	98.[illegible]
77	Multimedia Machine Ltd	www.mmm.co.uk	19.67	99.15%
78	[illegible]	www.vita.co.uk	17.[illegible]	99.86
79	Thames Global Internet Services	www.tgis.co.uk	15.60	99.15%
80	[illegible]	www.[illegible]net	14.52	99.[illegible]
81	Stratus Net	www.stratus.net	13.56	99.43
82	[illegible]	www.g[illegible].co.uk	11.[illegible]	[illegible]
83	Data-Link Internet	www.data-lnk.net	11.87	99.52%
84	[illegible]	www.a[illegible].co.uk	11.[illegible]	99.49
85	[illegible]	www.[illegible]pt.co.uk	10.[illegible]	98.36
86	[illegible]	www.[illegible]newspa[illegible].uk	9.76	98.47%
87	[illegible]	www.k-bit.gr	6.80	99.69%
88	Versus.NET	www.versus.net	6.52	98.[illegible]8%

September's Web hosting results

You've entrusted your beloved site to a Web host. How well is it being treated? Does it download quickly and reliably, or struggle down the wire? In conjunction with Zeus Technologies, we put 88 Web hosting companies to the test

Virtual Internet is back in the top spot with an excellent throughput figure of 461 kbytes/s. Just below it, in second place, Frontier Internet has risen seven places.

The biggest rise this month comes from Server World, which climbs 22 positions from 72nd place to 50th. Prestel On-Line has also done well, climbing 20 places to 29th. And Scotland On-Line has recovered from a poor result in August to rise 19 places to 39th.

Telinco has suffered most this month, dropping 29 places to 57th. Also heading in the wrong direction are IFB, which falls 18 places to 52nd and Dig-serve, which drops 16 positions to 51st in the table.

Many of the throughput figures we quote are over 100 kbytes/s, while normal modems rarely manage more than five kilobytes per second. But if you can download 100 kbytes/s down a high bandwidth connection (our test connections are ultra-high bandwidth), that's the equivalent of 20 people simultaneously downloading at five kilobytes per second.

We use the same principle of measuring potential when we're choosing the test pages. Many of the files we use are from the host company's own corporate pages.

Not all the host's clients will get this premium level of performance, but if a host can't get its own pages to download perfectly, they're unlikely to offer anything better for you or your business.

How the tests work

We've based the rankings on transfer speed – how fast pages can be downloaded from the host server to our test machines. There are three machines in the UK and one in the US. The second figure in the table shows the availability of the host server.

Our test system tries to contact the host roughly every 15 minutes, 24 hours a day. The availability figure tells you how often it's able to get through. The current tests ran over the period 5-20 July 1999.

For more details on how the tests are carried out, plus a look at how the current tests are going, visit **www.webperf.net**.

More about the company behind the Web host tests

The *Internet Magazine* Web hosting tests are carried out by Zeus Technology, which provides Web hosting companies and ISPs with high performance, easy to use, feature-rich Web server software.

Zeus Technology has crafted the fastest and most scalable Web server software in the world, providing excellent reliability to its customers. Zeus has developed close working relationships with the industry leading hardware vendors such as HP, SGI, Compaq and IBM and holds the world performance record in conjunction with HP.

Designed for large-scale I-commerce solutions, the company's products contain the strongest levels of security available, and because of its European location, are free from US export restrictions. Zeus Technology and *Internet Magazine* are committed to delivering the best Web host service test in the UK. For more details, see **www.zeustechnology.com**.

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Note: New articles to the service are highlighted in red.

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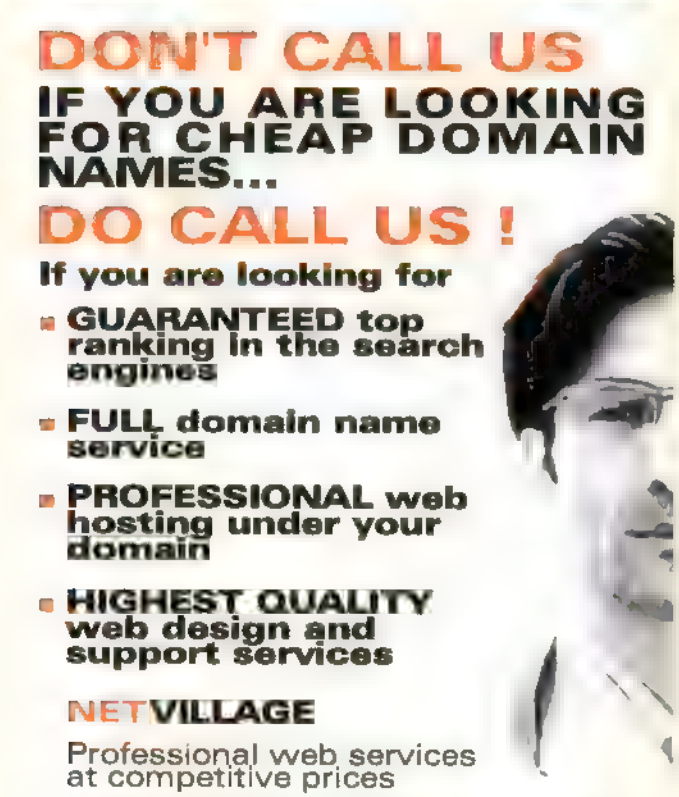

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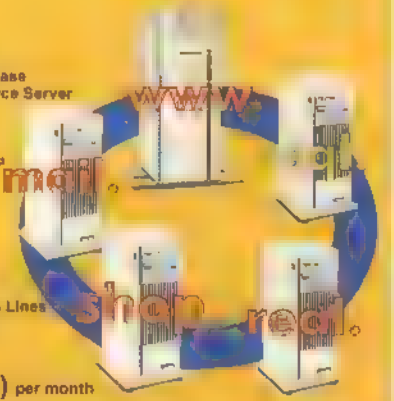

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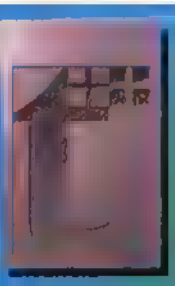

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